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MEAT CANNING AIDS RURAL FAMILIES

A radio talk by Mrs. Horace Dennison, Farm Woman, New Castle County, Delaware, delivered in the Home Demonstration Radio Hour, January 2, 1935, and broadcast by a network of 48 associate NBC radio stations.

--oOo--

As a representative of the rural homemakers of Delaware, I bring greetings to all Farm and Home Hour listeners and best wishes for a happy and prosperous New Year.

I think it would be particularly appropriate at this season of the year to begin my talk by repeating for you the Selkirk grace written long ago by the Scotch poet Robert Burns. It goes:

> Some have meat and cannot eat,
> And some would eat that want it;
> But we have meat and we can eat
> And so the Lord be thanket.

Now the only reason that many of us do have meat these days when it is commanding quite a high price is because we have made the effort to butcher, and preserve enough of the livestock which we raise to meet our family needs, instead of selling it on foot at a low price and buying it back, ready for use, at a much higher figure.

We had butchered and cured pork many times on our farm, and had taken turns with our neighbors in killing a beef and sharing the fresh meat during cold weather, but it was not until my husband and I attended a county meeting at which the local Home Demonstration Agent supervised the canning of a two hundred and seventy-five pound calf that we learned this method of preserving meat and its advantages.

On our way home, we decided to try it. Since our animal was very much larger and it was our first experience, we sold the hide and all but one hind quarter for thirty-six dollars and seventy cents. The parts that we kept in the refrigerator and used as fresh meat we estimated as worth at least three dollars. The rest we canned for steaks, stews and roasts and the broth for soup stock. Altogether we had thirty-five quarts, which conservatively valued at fifty cents a can was equal to seventeen dollars and fifty cents. This brought the total value in cash and canned goods up to fifty-seven dollars and twenty cents. After deducting twenty-five dollars, the price which we were offered for the live animal and about five dollars as the cost of canning (exclusive of labor) we had a net profit of twenty-seven dollars and twenty cents. This just about paid for a large size steam pressure cooker and a tin can sealer which have had constant use during the growing season for canning fruits and vegetables also.

Each year since we have followed this practice. Instead of canning the small scraps, I use them in mincemeat for which I have a ready sale.

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When our chickens were culled in November, there were thirty-five non-producers. These were slightly undersize and ranged in age from one to four years. One day we killed and canned eighteen of these. The bony pieces were cooked and this meat packed in pint jars for use in salad or chicken pie. The broth was canned for soup stock and the giblets canned separately. The meaty pieces filled twelve quart jars, so that altogether we have fifteen quarts of meat and four of stock from this canning. We might have continued to feed them and use them fresh, or we might have sold them all. As it is, we have saved the feed, it was cheaper to cook eighteen at one time than one at eighteen different times and what a satisfaction it is to know that when I return home late at meal time or when unexpected company arrives, I am prepared to meet the emergency.

It does require much effort and planning but we feel amply repaid when we realize that only in this way are we able to provide our family with well-balanced, appetizing meals which makes for health and happiness.

In closing, may I suggest first that it isn't too late to make a New Year's resolution to save on your nineteen thirty-five food budget by canning at least some of your meat supply and also that you send to the United States Department of Agriculture for its new Miscellaneous Publication No. 216, entitled "Meat Dishes at Low Cost" which will give you many valuable hints as to new and different ways of preparing both your fresh and canned meats.

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QUESTIONS FARM HOMEMAKERS ASK

A Radio Talk by M. S. Eisenhower, Director of Information, Broadcast Wednesday, February 6, 1935, in the Department of Agriculture Period, National Farm and Home Hour, by N.B.C. and a network of 50 Associated Radio Stations.

--ooOoo--

In talking to women, and on a program with women speakers, I suspect I'd better be pretty careful of what I say. But I'll risk this comment - that while it may or may not be true that women talk a lot - I am sure that they can ask a lot of questions.

At present - in the Office of Information alone - we receive about four thousand letters a day asking for information, or about one letter every seven seconds during the working day. In the course of a year we get about a million letters seeking information on farming and homemaking. That's in one office. The Department as a whole has received as many as a million letters in one month. Of that number, women write about--Well, to be downright honest, women write only about 15 percent of the letters. So maybe they don't ask so many questions after all. But anyhow, women do have their practical problems and they do call on us for many helps and suggestions.

Right now women are asking about the use of cod-liver oil in the diet, and hot school lunches, and making low-cost diets from the seasonable foods, and other winter-time topics.

Then, of course, the year around, we get hundreds of questions like these: What are acid and alkaline foods, and vitamins and proteins? Or, is it safe to combine milk and seafoods, or starch and protein, for the same meal? Questions like that last one seem to be promoted by false fears aroused by diet fads. Then we get an endless stream of requests for recipes and menus. Also women want to know how to judge the quality of clothes, how to make clothes, and curtains, and slip covers, and how to budget their income.

Well, those are just a few of the dozens of practical problems facing every housewife. The average housewife does not have the time, or money, or facilities to experiment on these problems, and to find out the answers for herself. She naturally turns to the Bureau of Home Economics of the Department, and to other scientific, unbiased agencies where, once an answer is found to a particular problem, it is available to housewives throughout the nation.

Miss O'Brien has touched on guides to help you judge quality and value when you are buying textiles. Miss Rokahr has told you about some of the work on home management problems. I think you already know about the food budgets prepared by the Bureau of Home Economics. I know you find them helpful in planning well-balanced diets to fit your pocketbooks and as a guide in planning your gardens and general food production program.

Now, women are interested in more than food and clothing. Many of you have shown considerable interest in the plans for low-cost farm houses compiled by State and Federal architects. From others come a steady stream of questions about the meaning of statements on the labels of foods and drugs. The Food and Drug Administration is glad to answer these. Then, of course, more and more,

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farm women are asking for facts about agricultural adjustments and about conservation. And from women come questions about poultry raising, canning, meat inspection, the weather, wild life, new varieties of fruits and vegetables, subsistence farming, and literally hundreds of other subjects.

The Department of Agriculture answers your questions and keeps you in touch with its work in various ways. We present Miss Van Deman, Mr. Beattie, and other specialists in this Farm and Home Hour period. On many stations Aunt Sammy broadcasts six days a week with recipes, household hints, and so on. The Adjustment Administration cooperates in sending you consumers' broadcasts each week. We make available to the press all the information coming out of research and other work. And, of course, we send you published material in reply to specific questions, or have our specialists answer your questions by letter.

I would like to emphasize two points about questions you may have: First, whenever possible, take up your problems with your home demonstration agent, or county agricultural agent, or your agricultural college. On many problems of a local nature the local agents and specialists are in a much better position to help you than we here in Washington. And, second, because of the necessity of economizing, we must limit the free distribution of bulletins and leaflets. We try to meet your requests, but many of our bulletins can be obtained only by purchase. The cost is only a few cents each.

And, finally, feel assured that we in the Department of Agriculture are always ready to give you all possible help in solving your home and farm problems.

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U. S. Department of Agriculture

PLANNING HELPS TO KEEP OUR FAMILY WELL DRESSED

A radio talk by Mrs. J. Kirn Thompson, Homemaker, Ellicott City, Maryland, delivered in the Home Demonstration Radio Program, February 6, 1935, and broadcast by a network of 48 associate NBC radio stations.

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Keeping the family well dressed is no longer a matter of visiting the large department store semi-annually or oftener and outfitting the various members in clothes of the prevailing fashion. With two boys and a small girl, all growing rapidly, I have found that planning is the secret of keeping our family well dressed.

At one time I disliked the idea of budgeting and buying by a plan and all probably because I expected my first plan to be perfect. Ready-made budgets are valuable as a beginning, but a workable plan can be made only after knowing definitely how much is spent for each member of the family. There are many good books or forms for keeping home accounts, but for clothing I have used the blanks provided by the Extension Service of Maryland. These blanks have the garments listed according to classes and there are spaces for the number purchased and total cost for each month. There is a separate blank for each member of the family and a special one for a summary of expenditures for the entire family to be filled out at the end of the year. I have kept these records for several years. My plans for purchases have been made after a careful study and analysis of records showing the cost of clothes for the previous year and how well different qualities and brands had worn. This has enabled me to make improvements in my planning and has determined the kinds of garments to be made. The records have been especially helpful in comparing garments for length of service. For example, my little girl had two dresses new at the same time, one ready made and one home made. The amount of money spent for them was the same, yet I had to take the panties which came with the ready made dress to patch it and make it wearable, while the other is still giving good service. Like most other women, I enjoy shopping at the better stores, not just to see what they have, but to get ideas for improving my own work and to make comparisons of the garments I make, with those having price tags that are beyond my budget. From actual comparison and experience I have found that sewing for myself and family is economical. Then, too, I find a great deal of satisfaction in making clothes, particularly in finding ways of making improvements. I have had help in this from many sources such as the shopping trips I just mentioned, magazines, home demonstration projects, and exhibits from the Bureau of Home Economics.

When my oldest boy, Jack, was very small, there was a meeting in my home of mothers interested in clothes for pre-school children. We had the opportunity of examining carefully many garments made at the Bureau of Home Economics. From these I got many ideas on designs suitable for the active, growing child and have used them not only for Jack, but his small brother Bill and sister_____. I have liked the patterns designed at the Bureau because they save the mother's time as well as meet the needs of the activities of the child. One I like particularly well is a romper

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with only six (6) buttons to complete the garment and so easily put together, which means a saving of time when sewing for three children.

With the cooperation of the Extension Service I made a winter coat for myself. By using fur from a former coat I was able to keep the cost to $12.80 and have a coat that compared very favorable with one retailing for three or four times that amount. This coat was so satisfactory that I have since made coats for the children, and a winter suit of dark blue material purchased from a woolen mill for $8.10. By using good quality material these garments look well year after year. Jack has outgrown his spring coat of two years ago, and it still looks like new. This coat will be passed on to his smaller brother and Jack will have one made from Cousin Fannie's old spring coat with an additional cost of one and a half yards of sateen lining.

For the cold winter days I have made woolen trousers for the boys. By using material from the woolen mills, and sugar sacks for lining I made 5 pairs for 38 cents. Old garments were used to making winter or snow play suits. Warm mittens knitted from left-over yarns cost nothing and compare favorably with those retailing for 59¢ a pair. I find that it requires three hours to knit a pair but I enjoy doing this while listening to the radio and keeping an eye on the children.

Making the most of what is available brings satisfying awards. An old pink linen dress which at one time might very well have filled the purpose of a fine dusting cloth was transformed into two lovely little dresses that lasted all summer.

My experience convinces me that it pays to buy all knit undergarments for the children and to make their outer garments. I feel that it is an economy to buy good shoes regardless of the cost for they fit better and last longer. Of course, special attention must be given to fitting.

Keeping our family well dressed on a reasonable budget has required a great deal of planning, careful buying and some home sewing and remodeling.

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THE RELATION OF LAND PLANNING TO ECONOMICS

Radio Talk for Farm & Home Hour
by Frederic A. Delano
Vice Chairman, National Resources Board.
February 15, 1935.

When I speak in public on so high-sounding a title as has been assigned to me, I feel as if I should either apologize or explain.

I first became interested in the subject of city planning because as a railroad man I was interested in the development of railway terminals in the large city of Chicago. Our problem then was to try to develop the terminals of twenty-six trunk line railways so that they would more effectively serve the city and avoid unnecessary competitive wastes. From that beginning, I became involved in the larger question of the future of Chicago and how our city could get the best results with the least expenditure of funds. It is not unnatural that my whole concept of planning became broader as I progressed. First, the city planning soon embraced the entire region around the city, and from that we naturally thought of a region which would include large parts of the State, or even a group of States. Fifteen years later I became actively interested in the plan of the New York Region, embracing parts of three States and twenty-seven counties. More recently, my interests have been in the Washington region, and finally, in the last year, with many highly competent colleagues, in the larger task of nation-wide planning.

You all know that out of this project of National Planning grew the idea that we should attempt to make an inventory of our national resources, and by national, as the President pointed out, was meant not only the resources which

nature gave us, but also our human resources. It has been pointed out by some commentators that some of our States, comparatively poor in natural resources, are very rich in human resources, and it is a well known biological fact that races which have become hardy under difficult climatic conditions show signs of softening and weakening when transferred to tropical and semi-tropical conditions. It goes without saying that while planning of physical resources is a difficult problem, the planning of human resources and the relations of physical to human resources involves many complex considerations. What we may call the economic implications or the social effects of this or that policy are decidedly important.

As President Lincoln pointed out, our forefathers founded a Nation dedicated to the principle of social equality, or as he said in that famous Gettysburg address - I quote:

"A new nation conceived in liberty and dedicated to the proposition that all men are created equal * * ".

So far as I know, no man has ever stood up before any audience willing to assert that that principle of social equality was a failure or an iridescent dream which should be discarded;--even though many admit that it is an ideal which has never been completely realized here or anywhere else, we all believe it is worth striving for.

Planning for the future is, of course, not a new idea. All great executives, whether in the Government service or in private business, have realized its importance. It was the game of kings from the earliest times, and many a ruler had a Machiavelli at his elbow to counsel him the wise thing to do and what to avoid.

In the twentieth century, we in America find ourselves facing very different problems from those faced by our ancestors for not until the twentieth century did we realize that we had run riot in our land of opportunity. We had tamed the forests; we had exploited our minerals, - rarely even listening to those who cautioned the necessity of conservation. We thought there was an abundance for all with no need of planning or caution. Apparently, when we reached the Pacific Ocean, having tasted of all the opportunities in the intervening territory, we were thrown back on ourselves, and for the first time planning became an economic necessity, unless we still choose to believe in the doctrine of "Everyone for himself and the devil take the hindmost". Broadly speaking, planning concerns itself with land use and the use of land, of course, includes the use of the waters within that land, for land without water is a desert - a boundless waste. Land planning includes the great agricultural problems of what lands are best suited for certain crops and what for other uses; what lands should be used for grazing, and what reserved for forest areas or recreation purposes.

More than half our people now live under urban conditions in cities and towns in excess of 2,500 inhabitants, but even so, the total area occupied by the cities and towns is but a small share of our entire area. For these reasons, the intelligent assignment of our lands, an allocation which will prevent waste of human effort by preventing the use of land for unsuitable purposes, becomes important. But even so, there are many angles to the land use question, including use of all our water resources for our greatest human needs. The study of climate, the study of the many uses of water, the study of mineral resources of the earth and the best way to avail

ourselves of them; the study of the generation and distribution of electricity in the most economic way possible, are all major problems which must be planned for. How to educate our people, how to stimulate them, how to keep our scientific and social research in advance of our human needs, how to achieve a reasonable degree of comfort and happiness for our people and still keep alive their incentive to do better for themselves and their fellow-men, are among the great problems of planning human resources. Fortunately, planning is a big enough subject to interest every type of intelligent citizen. It is all-inclusive - nothing narrow about it. It used to be assigned to the architects and the engineers, but it is recognized now that it has a wide and generous appeal.

Planning presupposes careful study of our subject in order that we shall make no mistake, but also that we shall secure the greatest results for a minimum expenditure.

Finally, my friends, the successful achievement of worthwhile projects involves

First, the careful gathering of data;

Second, the interpretation of that data, and

Third, carrying out the project in the manner thus determined as economically as possible.

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U.S. DEPARTMENT OF AGRICULTURE

DECISIONS, DEMOCRACY, AND DISCUSSION

A radio discussion among M. L. Wilson, Assistant Secretary of Agriculture, Roy F. Hendrickson, Assistant to Mr. Wilson, and M. S. Eisenhower, Director of Information, broadcast Tuesday, February 19, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

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SALISBURY:

Today we are beginning a series of programs which we believe will be intensely interesting to nearly everyone in this audience. The series will continue for six Tuesdays after today. This first session is dedicated to telling you what it's all about. In the studio with me are the Assistant Secretary of Agriculture, Mr. M. L. Wilson; his assistant, Mr. Roy F. Hendrickson; and the director of information for the Department, Mr. M. S. Eisenhower. Without further ado, I'm going to ask Mr. Eisenhower to take the microphone.

EISENHOWER:

All right, Morse, and hello, everyone.

Mr. Wilson and Mr. Hendrickson and I are inviting ourselves into your homes today to discuss discussion.

That is what this series of radio programs will be about -- discussion of some fundamental problems that confront rural people; discussion of problems that cannot safely be solved without discussion. Notice I say discussion, not debate. In a debate you draw sides and argue for the sake of argument and the thrill of contest and the glory of your society or school or other organization. In a discussion several people take part as individuals. Maybe no two persons will present the same viewpoint. In a discussion you seek enlightenment, not merely the thrill of argument or of conquest by decision of the judges.

Well, this sounds pretty abstract. I know you want to get down to cases. I think the best way to get down to cases is to ask Mr. Wilson to tell you what is back of this series of radio discussions which we will present in the Tuesday Farm and Home Hours during the coming six weeks. Will you do that, M.L.?

WILSON:

I'll try, Milton. It seems to me that what is back of the radio discussions is a vigorous new interest in fundamental national affairs. Farmers and other people are thinking hard about such matters. They always do in times of crisis. Of course, they want pertinent information. But they also want a chance to sift and winnow information and ideas; to find out what other people know and see what they think. Very few people nowadays are dogmatically certain that they know which course should be followed; for example, with respect to our foreign trade, few people are dogmatic about what policies are wise and what policies are not so wise. Before they make up their minds, they want to be sure that they have considered every alternative.

(over)

So a demand has surged in from every quarter for a way of carrying on open-minded inquiry. Hundreds of discussion groups are now meeting regularly in farm communities. Requests for assistance have come to the Department of Agriculture. They have come also to the people in the Land Grant colleges and universities.

Two months ago, Secretary Wallace appointed a committee of Department people to see what could be done to meet these demands. You have often heard the Secretary express his faith in the ability of citizens to solve the nation's problems in a democratic way. Of course, the truly democratic way is through calm consideration of facts and discussion of principles, not through passionate controversy with hates and fears rather than cool intelligence swinging the balance.

Naturally, the Secretary and his colleagues in the Department welcomed the evidence of interest in free discussion. But we had some misgivings about offering to help citizen groups that wanted to carry on public discussion. We wondered if a Government Department responsible for executing definite programs, might be charged with carrying on what some people call bureaucratic propaganda. Now propaganda was the furthest thing from our minds. We couldn't be genuinely interested in discussion if we wanted to carry on propaganda.

So we turned to a group of agencies that could not by any stretch of the imagination be charged with self-seeking in advancing the cause of civic education. We got in touch with some of the Land Grant colleges and universities and found that they stood ready to help the citizens of their States organize for discussion. They had received requests for such assistance. They are institutions for public enlightenment. There can be no question about their unbiased attitude toward discussion of fundamental issues.

The Department committee decided to give the colleges and universities whatever aid it could. Representatives from 10 of the institutions met with us early this month. They indicated what assistance the Department might give them. They especially wanted guides for the leaders of group discussion in their States and factual material on some of the questions that might come under consideration in discussion groups. We agreed to furnish these two types of aid.

Now, let me emphasize that in preparing a guide for leaders of group discussion the Department is not seeking to forward any of the programs which Congress has directed it to administer. The Department is not seeking to dictate the choice of topics for discussion by any group. We are simply giving such help as we can to aid a movement that seems to us very important to the future well-being of our society.

EISENHOWER:

Well, now, M.L., you have told us up to this point that the Department stands ready to give some assistance, either directly or through the Land Grant colleges, to discussion group leaders and members. This assistance will be of two types. One is a brief guide explaining some modern methods of conducting group discussions. The other is a few summaries of fact and viewpoints bearing on fundamental agricultural problems. To make the thing more specific, will you give us a few of the questions concerning which material will be supplied by the Department?

WILSON:

Yes, certainly. The questions include such knotty problems as these:
"What kind of foreign trade policies do American farmers want?"
"Is it in the interest of the nation to have more or fewer people living on the land?"
"The farmer and the consumer of farm products: what, if any, are their obligations to one another?"
"What kind of a rural life do we want?"

EISENHOWER:

Tough enough, those questions. And I can assure our listeners that the other questions on the list for which we're working up material are as tough. Now, M.L., one last thing. You haven't told us about the relation of this series of radio programs to the general discussion idea.

WILSON:

Well, we hope the radio programs will indicate to interested people some methods of carrying on discussion. The radio programs won't be worth much unless they interest people in carrying on discussion for themselves.

EISENHOWER:

Seems to me that the aim of the radio discussions is to offset the bad effects of passively listening to the radio and the platform speakers, and not thinking and talking things out for yourself.

Maybe this is a program to end radio talks!!!!

WILSON:

If it ends mine, that will be something gained -- for the audience at least, but I wouldn't want to end <u>all</u> radio talks -- or platform speeches. They always will be important and necessary in civic education. But we do want to aid and abet the thousands of citizens who have the worth-while ambition to express their ideas and rub the rough edges off their thinking by the process of discussion.

EISENHOWER:

All right, then. Let's talk a little bit about how the members of a group can get the most out of discussion. Roy Hendrickson, here, was in on the sessions with the Land Grant college representatives; he has made some study of what educators call the "techniques" of group discussion. Also, to reinforce his steel-trap memory, he has with him a copy of the booklet on group discussion methods prepared by the Department people. Roy, will you give us a brief explanation of the difference between discussion and other methods of civic education?

HENDRICKSON:

You might read the booklet, Milton, if your own bull-dog memory has let you down.

(over)

EISENHOWER:

You know, I've read that booklet, Roy. But our listeners haven't. Maybe they'd like to, and I'll ask Morse to tell them later on how they can get it. But meanwhile, I believe they'll be interested in a further explanation.

HENDRICKSON:

Very well. Now I don't suppose the general idea of group discussion is completely new to most of you listeners. You have heard about or taken part in several kinds of group discussion. One kind is the forum. Another is the panel discussion. The third and probably the most effective in civic education is the small discussion group.

In the forum, you have a pretty large audience. You have one or more speakers present their views in a more or less set speech. After the speaker or speakers have finished, the chairman opens the meeting to discussion by the audience. The people in the audience either express their own views, or put questions to the speakers.

The panel method is also used with large audiences. The panel is a group of four to eight people occupying the platform and carrying on discussion before the audience. The chairman of the panel keeps the discussion from straying too far or winding up at a blank wall by putting leading questions, and at the close of the discussion he states the viewpoints expressed by the members of the panel.

Now, about the discussion group. This really is the modern equivalent of the cracker-barrel confab around the stove at the cross roads store. The only difference is that you have a group leader, a sort of chairman, like the panel chairman.

But the discussion group is different from the panel in that every one in the audience feels much more free to take part. The group is small. Its members usually know each other.

EISENHOWER:

And the leader, if he knows <u>his</u> business, makes it easy for <u>each one</u> to put in <u>his</u> nickel's worth.

HENDRICKSON:

Yes. You <u>have</u> read the booklet, Milton. Well, as Milton says, the leader of the discussion group, if he is on to his job, keeps himself in the background, and draws out opinions from the 10 or 20 or 30 people present. He steps in only to make certain that everyone understands the things to be discussed; that all who have opinions express them, and that the session winds up with a good summary statement of the main points advanced. He can either make the summary himself, or ask someone in the group to make it. The leader has one other important function -- to see to it that the <u>facts</u> relating to the subject under discussion are available.

EISENHOWER:

Thanks, Roy. We haven't time, I'm afraid, to go further with discussion of methods. But I wish you would close with an explanation that will make clear the reasons why people want group discussion of affairs and issues; why they are not content with the older methods of lectures, debates, and so on.

HENDRICKSON:

There are three reasons, I should say. The first one is that right now, people, as M. L. commented, are not dogmatically certain. But they want to make intelligent decisions. That leads them to wish to take part in discussion, rather than just sitting and absorbing. For such people the lecture method doesn't fill the bill.

Nor does the debate satisfy them. They want to hear a wide variety of points of view on the subject. The debate doesn't offer this variety, for it matches points pro with points con, instead of canvassing all points of view.

And just presenting facts doesn't meet the needs of the persons who wish discussion. They want not only facts, but judgments and opinions. They get judgments and opinions, as well as facts, from taking part in discussions.

EISENHOWER:

Thanks, again, Roy. Now, to sum up the main points we have made today: First, there is growing demand, especially from farm people, for opportunity to meet together and, by use of modern discussion methods, to clarify their thinking on numerous fundamental problems. Second, the Department and some of the Land Grand Colleges are ready to give some help to farm and other people who wish to organize group discussion. This help will take the form of a booklet on methods and some information on several topics. Third, in offering this help, the Department is not trying to dictate the development of any program but is trying to help those who wish to fulfill their duties as citizens of a democracy. Fourth, in the Tuesday Farm and Home Hour programs for the next six weeks, we shall present brief discussions aimed to bring out the various viewpoints on six different fundamental agricultural problems. Their aim will not be to urge adoption of any one viewpoint, but to indicate what the different viewpoints are, and to show how they may be brought out in a discussion group, by a panel, or at a forum meeting. Finally, if any of you want the mimeographed booklet on methods of group discussion, you may get it by sending a request to the Assistant Secretary of Agriculture, Department of Agriculture, Washington, D. C. Will you repeat that address, Morse.

SALISBURY:

Yes. Here it is. Assistant Secretary of Agriculture, Department of Agriculture, Washington, D. C. If you want the mimeographed booklet on methods of group discussion send to this address.

Now let me announce to you that on next Tuesday, we hold the first of the series of six brief discussions of important problems in American agriculture. Secretary Wallace has agreed to take part. The remainder of our discussers will be signed up this week. And Mr. Eisenhower will preside. The topic for discussion is "What kind of foreign trade policies do American farmers want?" To

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make it more explicit, I presume Milton will ask the discussers such questions as these:

"Which is most important to American farmers -- the nation's imports or exports?"

"What will be the effect on agriculture in this country if exports continue to decrease?"

"Why have exports of American farm products fallen off in recent years?"

"What would happen to agriculture in this country if exports sharply increased?"

"Do we want more imports; if so, of what?"

"What would be a practical foreign trade program?"

What's your answer? I'm sure I wouldn't know what mine was to several of those tough ones. We'll see next Tuesday what some of the discussers have to say about them.

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WHAT THE WEST VIRGINIA EXTENSION SERVICE IS DOING TO AID FARMERS IN ECONOMIC ADJUSTMENT

A radio talk by F. D. Fromme, Dean and Director, Extension Service, Morgantown, West Virginia, delivered in the Land-Grant College radio program, February 20, 1935, and broadcast over a network of 48 associate NBC radio stations.

--ooOoo--

A new problem was presented to the Extension Service in West Virginia with the coming of the national adjustment programs for agriculture. When a state produces less wheat, corn, and pork than is needed for home consumption, it seems proper to raise the question: Why reduce production in a deficit area?

That was our problem. From the national viewpoint the reasons for production control were good and sufficient, but when we applied them to West Virginia it seemed like asking a thin man to make a reducing treatment for the good of a neighbor who was over-weight.

Our group of specialists at the college argued the matter at length and finally agreed that perhaps a change of diet might help the thin man as well as the fat man. At least it seemed worth trying. With wheat at the markets bringing less than 40 cents per bushel, corn selling at about 30 cents, and hogs as low as $3.00 per hundred pounds, conditions couldn't be much worse.

Now, that the initial stage of the adjustment is passing we look back at our part in helping to promote the control program with considerable satisfaction. West Virginia farmers who signed and will sign contracts for production control will share in approximately a million dollars that have been and will be distributed in the state in the way of adjustment payments. In addition, the income of farmers throughout the state was increased about two and a half million dollars in 1934 because of better prices.

The greatest value of economic adjustment for agriculture, however, lies ahead. For years we have been nibbling at the larger problems of balanced farming and land-use with indifferent success. We have preached home-grown feeds and foods, lime and legumes, pasture improvement and reforestation for steeper lands, and our preaching has in a large measure fallen on the thin soil of inaction.

The adjustment programs are proving new and effective tools for preaching the gospel of economic agricultural production. They make clear the interrelation of individual farms to the farms of the community, state, and nation, and help farmers to take stock of their own operations and to plan better systems of management. In West Virginia nearly five thousand farmers are keeping records of their farm business for the first time. Many of these farmers are new clients of the Extension Service, and some have joined forces with their neighbors in their first cooperative adventure as a result of the adjustment plan.

Rapid progress in achieving some of the long-time goals now seems assured.

Economic adjustment has not only provided new direction for the program of better farming in West Virginia; it has also offered new opportunities for the

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Extension Service to aid the part-time or subsistence farmer.

Early in the depression, before national relief was begun, the West Virginia Extension Service saw a new field of usefulness in promoting relief gardens. Garden clubs were organized through-out the state and vast quantities of food were grown, canned, and stored for winter use.

Out of the experience gained from the work with subsistence gardens, homestead communities developed. These were followed by plans for rural rehabilitation with the aim of making dependent rural families self-supporting. Although other agencies have assumed the direction of these activities the Extension Service acts as adviser and carried a considerable share of the work.

The phase of land planning which aims to retire worn-out, unprofitable lands from agricultural use, and to provide better lands for people formerly condemned to live on poor lands, offers a further opportunity for social and economic adjustment in West Virginia.

On the brighter side, the possibilities of recreating some measure of the virgin paradise which was West Virginia's heritage prior to the day of the saw mill, the slash heap, the forest fire, and the polluted stream, has stirred the imagination of the nature lover and all forward-looking people.

National economic planning for recreation, reforestation, and better use of good land; for self-support by under-privileged people; for balanced production and more profitable farming-has brought new visions of usefulness to the Extension Service of West Virginia.

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WHAT SHARE OF THE NATIONAL INCOME IS THE FARMER GETTING

A radio talk by Dr. R. B. Corbett, United States Department of Agriculture, delivered in the Land-Grant College radio program, February 20, 1935, and broadcast by a network of 48 associate NBC radio stations.

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Suppose you are the person responsible for the farmers' welfare in the United States. How would you undertake the great task of seeing that agriculture, that part of our national life which has not known prosperity since 1920, gets a square deal?

Your problem will lead you immediately to a consideration of the relationships between agriculture and other parts of our national life. You will be asking: "What share of the national income should go to agriculture?" If one fourth of our people are working on farms, should one fourth of the total national income go to these people? A national leader has recently said: "Farmers will have a fair share of the national income when their share is sufficient (1) to maintain a flow of production in balance with the needs of a maximum consumption; (2) to provide for decent human living, and (3) to achieve these ends without impoverishing the soil." I doubt if anyone would disagree with this, but it will not answer your question. You must decide how many dollars, or what percentage of the total income of the country should go to farmers.

In 1932 agriculture received a total of $4,300,000,000 and this was only a fraction of the income which agriculture received before the depression. The estimates for 1934 indicate that farm income has risen to over six billions of dollars. That seems like a great deal of money, but let us find what part it was of the total. The $4,300,000,000 in 1932 represented only 8 percent of our national income, and the increase in 1934, while representing approximately a 40 percent increase in dollars, raised the farmers' share of the national income to only 9-1/2 percent of the total. Can you, as the person responsible for the welfare of 23 to 25 percent of our population, be satisfied with 9-1/2 percent of our national income?

You will, of course, look back into history to see what agriculture has had in the past. In 1850 when 63 percent of the gainfully-employed people in this country were doing agricultural work, the share of the national income that went to these people was about 35 percent. In 1900 the percentage of people on farms had dropped to 36 percent of our total population. This 36 percent received about 20 percent of our national income. In 1932, which was the worst year of the depression, the best estimates indicate that 21 percent of our total working population was on farms and, as we have already said, only 8 percent of the national income was obtained by these people.

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As you study these figures you will see that over a period of years the farmer's share of the national income has approximated a little more than half the percentage of the working population employed in agriculture. That is something to cause one to stop and think. On a man to man basis farmers have received about half of what other groups have received of our national income.

Should this past history be the guide to what may be expected for agriculture in the future? Although considerable progress has been made in increasing the farmer's income in the last two years, even on the basis of past history agriculture should be receiving nearly two billion additional dollars per year out of our present national income. We are striving to increase our national income from around fifty billions, which is the present figure, to more than seventy billions of dollars.

Those who are working most closely with this problem feel that agriculture must get about five billions of dollars of this increase of twenty billions if we are to maintain prosperity. Past experience leads to the conclusion that agriculture must be reasonably prosperous if industry and the Nation as a whole are to have prosperity for any period of time.

As the person responsible for agricultural welfare in America, you must get leaders in all walks of life to understand this problem and to help you reach a sound solution.

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HOW NEEDY FARM FAMILIES ARE HELPED TO BECOME SELF-SUPPORTING

A radio talk by Paul V. Maris, Supervisor of Field and Information Service, Rural Rehabilitation Division, Federal Emergency Relief Administration, to be delivered in the Land-Grant College radio program February 20, 1935, and broadcast by a network of associate NBC radio stations.

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I have been asked how the needy farm family is helped to become self-sustaining, through the rural rehabilitation division of the Federal Emergency Relief Administration.

Here before me is the record of a farmer, who, with his wife and two children, moved some years ago from Iowa to Missouri and bought a small piece of land on credit. A year ago, this farmer had been so badly beaten by the depression that he had practically no income from his farm, and not only were he and his family on relief, but the man from whom they had bought their little place was also in a relief administration transient camp, largely because the purchaser had been unable to pay anything on either principal or interest.

This year the farm-owner has again become a tax-payer and a purchaser of merchandise from local merchants. The mortgage-holder will be able to leave the transient camp. They were put on their feet by the rehabilitation program, the keystone of which is self-help and supervised credit.

Rural rehabilitation combines the educational work of the county agricultural agent with the financial aid of the farm credit administration, and thereby takes the man who is an impossible risk for the credit agency and makes him eligible, through careful planning and close supervision, for rehabilitation aid.

This client of rural rehabilitation has bought, or will buy, from his local merchants this year, $675.00 worth of food not produced at home. He will pay $63.00 in taxes and in interest on his mortgage, and $96.50 on the mortgage principal. His tax payments will put him to carrying the load which he had previously laid upon others.

His experience typifies one way in which the farmer is being helped, and the public is being helped by the rural rehabilitation program. Final cost of this program is only the cost of supervision, if the client repays the investment as it appears this one will be able to do.

But in most cases clients will find it hard to make repayment without an income over and above what he makes from his farm. It would not be advisable to crowd the 600,000 farm families who are now estimated to be on relief back into the commercial farming from which many of them have been ejected. There are already more than enough farmers to grow all the commercial crops for which this nation can find a market. The rural rehabilitation division, under the leadership of Lawrence Westbrook, Assistant Federal Emergency Relief Administration Administrator is, therefore, breaking away from the commercial

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farm program, and is placing most clients not already engaged in commercial farming upon subsistence farms, where they will in general grow only enough food for home use. The aim is to promote industrial employment in rural areas, to bring supplemental income which will complete the process by which former relief clients become self-sustaining.

An entering wedge for such industrial activity is the rural work center. Two weeks ago I visited such a center at Snellville, Georgia. One unit, the blacksmith shop, represented an investment of only $485.00, which had been advanced by the relief administration to buy equipment. This shop was being used practically to capacity by rehabilitation clients and others for repairing farm tools and wagons, horse-shoeing, making harness, etc. A small toll is charged to repay the relief administration's original investment and maintenance cost. Across the road from the shop, women were busy with canning equipment, moved into the basement of the school from a plant where canning of drought cattle had been completed. Others were sewing, or making quilts or mattresses. The day I was there, one woman walked five miles and back, to use the work center facilities.

One of the farmers present told me his home and barn were badly in need of repair. "I have timber on my place," he said, "and I am willing to donate part of it to the work center if I can get the remainder cut into material for my own use." I was happy to tell him that he could do so.

We know that to a modest degree such enterprises will compete with established industries, but we expect the public to assume an attitude of give and take -- giving a small part of the established market in order to take the greater good which will result when the rehabilitation client has been made self-supporting, reestablished again as a tax-payer and as a customer of his local business institutions.

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DAIRY PROGRAM FOR THE NORTHEASTERN STATES

A radio talk by J. E. Carrigan, Director, Extension Service, Burlington, Vt., delivered in the Land-Grant College radio program, February 20, 1935, and broadcast by a network of 48 associate NBC radio stations.

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The dairy program for the Northeastern States is the production and marketing of milk for consumption in fresh fluid form.

In this region less food is produced than is consumed. Even though dairying is the most important agricultural industry, there is only enough milk produced to care for the fluid milk requirements and part of the sweet cream requirements. The supply of manufactured dairy products comes almost entirely from outside.

The dairymen of the Northeast are almost exclusively interested in producing milk for the milk markets. They aren't interested in producing butter or cheese. They aren't interested in producing evaporated, condensed or powdered milk. They aren't even interested in producing cream. Of course, since there is more milk produced than the markets will take as milk, it has to be sold in some other form - usually cream. But the area as a whole is a fresh fluid milk producing unit. Thus, I repeat that the dairy program of the Northeast is producing and marketing milk in fresh fluid form.

Of the many problems connected with this program, I am going to confine what I have to say to one - that of getting the dairymen of the Northeast to share their fluid milk markets equitably.

Milk consumed as fluid milk brings the highest price, milk consumed as cream brings a lower price and milk consumed as butter, cheese and other dairy products brings a still lower price. Thus there is a great incentive for each producer to sell as much of his milk as possible as fluid milk and let the other fellow sell his supply as cream.

This has been largely overcome, so far as individuals are concerned, by the development of producer-cooperative organizations in which the product of all members is pooled. But we have now several such cooperative groups functioning in the territory. In fact there are usually several such groups selling in the same market. Each of these groups wants to sell as much as possible of its product as fluid milk and as little as possible as cream. This starts price wars which cause unstable market and price conditions - bad for producer, distributor and consumer alike. Some of these wars, or phases of them, develop between states.

This unwillingness of individuals, groups, states or milk sheds to share has become more intense during the past few years of low milk prices, and as a result state and federal governments have been brought into the milk marketing field. Thus we now have state milk control boards and federal

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marketing agreements and licenses attempting to do what the industry alone seemed unable to do, namely, to bring about an equitable sharing of the milk markets by the dairymen of the Northeast.

This problem is not peculiar to this region. It prevails throughout the country. Furthermore, it is not the only problem in the dairy industry. There are many others. This, however, is the acute one at present and the one which must be solved if the dairy industry of the region is to continue on a stable basis.

Before the problem can be solved, dairymen, their leaders, state milk control boards and federal license administrators, must realize that there must be an equitable, or fair and just, sharing of the markets. This does not mean an equal sharing since such obviously would be unfair and inequitable. There must be differentials worked out on a fair basis as between individual dairymen and groups of dairymen, between states and between milk sheds. So long as individuals, cooperative organizations, states or milk sheds maintain the attitude that they must fight to obtain every possible advantage for themselves, there will likely be no equitable settlement and market and price instability will continue.

A few months ago a permanent Northeastern Dairy Conference was organized. The purpose of this Conference is to draw dairy leaders together from throughout the Northeastern states so that they may discuss their common problems and plan together how these problems may be solved. Already attention has been given to the matter of developing coordination between marketing organizations, state milk control boards and the federal government in the market stabilizing program. Much remains to be done on this problem and the Northeastern Dairy Conference has set up a continuing committee to work on it. Other matters of concern to the dairymen are receiving its attention. Furthermore this Conference stands ready to represent the region in the consideration of any national dairy programs that may be undertaken. Right now it is focusing on this marketing problem and is trying to develop among all groups and units of the industry a realization that producing and marketing fluid milk is the dairy program common to the whole region and that there must be worked out an equitable sharing of the milk markets if the dairy industry is to prosper.

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FARMERS AND FOREIGN TRADE

A radio discussion among Henry A. Wallace, secretary of agriculture; Nils A. Olsen, chief, bureau of agricultural economics; M. S. Eisenhower, director of information, and Paul A. Porter, chief, press section, AAA, broadcast Tuesday, February 26, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

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SALISBURY:

In today's Farm and Home Hour we present the second of the series of programs dedicated to advancing group discussion. Last Tuesday, Assistant Secretary Wilson of the Department, Roy Hendrickson, and Milton Eisenhower, explained that the aim of the series is to indicate how discussion of some fundamental agricultural problems might be carried on. The aim is not to urge any particular viewpoint on you. It is to encourage you to gather together for discussions of fundamental problems.

Our discussers today are going to wrestle with this question: "What Kind of Foreign Trade Policies Do American Farmers Want?"

Presiding at the discussion table is M. S. Eisenhower, director of information for the Department. Carrying on discussion will be the Secretary of Agriculture, Mr. Henry A. Wallace, the chief of the Bureau of Agricultural Economics, Mr. Nils A. Olsen, and the chief of the AAA press section, Mr. Paul Porter. Maybe if the urge to speak explodes in my buzzum, I'll join in with a sapient observation.

But right now, I take my seat in the audience and yield the microphone to the chairman of the discussion group -- Milton Eisenhower.

EISENHOWER:

Thanks, Morse; and hello, everyone.

It's not news to anyone in this audience that American farmers have a heavy stake in foreign trade. American farm products valued at hundreds of millions of dollars are exported each year.

But the amount and value of these exports have declined in recent years. The estimated value of American farm products exported in 1933 was less than one-half of their estimated value in 1929, and less than one-fifth their estimated value in 1919.

Now, everyone agrees that this loss of the export market has been responsible for a considerable part -- though not all -- of the distress of American agriculture. Perhaps it would be profitable to find out why exports of our farm products have fallen off.

(over)

OLSEN:

Well, there are why's back of why's, but the first reason seems to be that many other nations have put up barriers against imports. Two years ago the economists of our Bureau drew a graphic picture showing the height and the extent of these barriers. Since then, the situation has become worse. Exchange restrictions, quotas, tariffs, and other devices keep more of our products out of more countries than two years ago. Agriculture isn't the only sufferer! For example, one of our big movie concerns finds it impossible to get the money due it for film rentals in Germany because of exchange restrictions. Dealers in wheat and cotton and lard are in the same fix, only they don't send their products into Germany at all since they know the people there who want them can't get the exchange to pay. Well, I've wandered a bit, and I haven't gone back of the trade barriers to expose what holds them up.

PORTER:

Well, Nils, there's a pretty general opinion around here that one of the chief props holding up those trade barriers against our farm products is our refusal to act as a creditor nation should. But the Secretary really has prior rights to that analysis of the situation -- he's been using it for more than 10 years.

OLSEN:

So he has, Paul. I think we'd better call on him to state it once again.

WALLACE:

Very well, Nils. Here, briefly, is my viewpoint:

In 1914, we were a debtor nation. We owed, net, about 3 billion dollars to foreigners. Foreign nations took our goods in payment for the interest on the debts we owed them; and also in return for goods which we imported.

During the war the Old World called on us for great quantities of farm and factory goods. We supplied them. The result was that we put Europe in our debt. We came out of the war a creditor nation, with some 14 billion dollars, net, owing from abroad.

Then we had to choose between two courses. We could let in the goods necessary to pay the debts, and maintain exports. That meant cutting down tariffs. We didn't do that. We took another course. We lent money and left the problem of collections to the future. By the end of 1928, our long-term creditor position was more than 16 billion dollars.

The loans <u>did</u> provide a temporary market for our exports. We were paying for them ourselves. But when the loans began to drop off after 1928, our exports began to drop off, too. Since we kept up tariffs -- even increased them -- and loaned less, it was increasingly hard to export. The decisive end of the money lending road came in 1930.

EISENHOWER:

There seems to be pretty substantial agreement in this group that our exports have dropped off first, because of trade barriers, second, because we have refused to act as a creditor nation must, and third, because we are no longer paying for these exports ourselves by lending money abroad.

Now this question occurs to me: What will be the effect on agriculture in this country if exports continue to decrease?

PORTER:

In the cotton belt, long-continued decreases in exports would mean that large numbers of people in the cotton industry would have to find other ways of making a living. It would mean a very trying time, to say the least.

OLSEN:

The same thing would be true in other sections that are geared to produce heavily for export -- the wheat belt, the corn belt, the export tobacco regions. The people there are equipped to produce more of these crops than the people of America will buy. Their land is best adapted to these crops; so is their labor. It would be mighty painful to cut down permanently to the domestic basis.

SALISBURY:

Is that necessarily so? I may have misread them, but I got the general impression from such books as Beard's "Open Door at Home" and Crowther's "America Self Contained" that it might be all to the good for this nation if we gave up the struggle to maintain exports at any particular level, and went to living at home and trading only to get those goods which we must have, and can't produce at home, or to get luxury goods.

PORTER:

That's an oversimplified statement of the argument, Morse.

SALISBURY:

I grant that. But what I said does represent, however roughly and inadequately, the viewpoints of some people who have been mulling over this problem.

OLSEN:

Yes, it does. That general idea is advanced quite forcefully from many different quarters. However, I would say that the people who put it forward may underestimate the troubles that would follow from trying to compress our farm plant to a domestic basis. Wouldn't you say so, too, Mr. Secretary?

(over)

SECRETARY:

Yes, I have said it a number of times, and I'd repeat it again. The people who hold that point of view believe that, given a high enough level of per capita income in this country, there would be a sale at a fair price for every bit of our farm and factory production. That might be true for factory production. It couldn't be true for our export crops. No matter how high the buying power of our own people, they still could not consume for food all the wheat, for instance, that we have been accustomed to produce. Of course we could reduce wheat production to a domestic basis if farmers were willing to pay the price. But, since we can't eat all our wheat or wear all our cotton, we can swap what we have left for something we want..... that is, if we decide to follow a trading policy.

EISENHOWER:

I take it from what's been said you men agree pretty well that the contraction of our export markets is very painful to agriculture; although there is some recognition of the argument of those who prefer nationalism -- retreating from the foreign market.

Once again we seem to have come to a point where we should raise another question. This time I would ask you gentlemen which is more important to American farmers -- the nation's imports, or exports?

PORTER:

A good question for discussion. Only it's something like the old classic, "which came first -- the chicken or the egg?" Personally, I join with Wheeler MacMillan in taking a firm stand on that question. My answer always is, "I don't care." But you can't make that answer to your question. So let's leave it to the economist.

OLSEN:

Well, I know in advance you'll say the answer I'm going to give is a typical economist's answer. But here it is: Both imports and exports are important. It's utterly impossible to say that one is more or less important than the other. In economic theory we should derive the greatest advantage from importing the goods which others can produce more advantageously than we, and exporting the goods which we can produce more advantageously. Our trouble is that we've acted as if exports were more important than imports.

SALISBURY:

I hate to be obliged to appear here so many times as a devil's advocate. Maybe I've been infected by reading some of the recent critiques of the classical theories, especially Beard's "Open Door at Home." But I would call attention to the idea strongly developed there and elsewhere, that the classical theories of natural advantage and division of labor can't apply so well in a world of machine economy, as they seemed to apply in earlier times. Machine products are much the same whether you make them here or in Timbuctoo. What advantage is there in trading such things across the face of the earth?

SECRETARY:

If I may drop in an observation here ----- in a sane world, without barriers of hate and suspicion, the other countries might choose to develop products more in line with their own national genius, then trade those goods for our machine products and the farm goods we produce most efficiently, instead of setting out to duplicate our production.

OLSEN:

I recall, Mr. Secretary, the argument you have advanced along this line time and again -- that there are places and peoples best adapted to producing many different things, and that reasonable exchangeability among them works out to the good of all concerned. Also, that efficiency of production and general welfare are fostered by mobility of trade. I believe we want to keep advancing in efficiency -- keep our economic system dynamic, not assume that things have settled into a static condition where they will stay forever. I recognize that we can't control the policies of other countries, and if they are bent for one reason or another on imposing barriers in the way of trade, we have to deal with them in a realistic way, if there is to be any trade at all. But as Milton said a while ago, there is this substantial agreement among us -- that you must have imports in order to export, unless you are willing to give your stuff away.

PORTER:

The cotton belt will give you an almost unanimous amen on that, Nils. The South wants to keep a <u>profitable</u> export trade.

SALISBURY:

Even though, to do so, you must let in imports which will cause painful adjustments in manufacturing industries?

PORTER:

That's an unpleasant way to put it. Rather, let's put it that the workers and capital in some uneconomic machine and farm industries might find reemployment in efficient industries easier than the workers and capital involved in cotton production and handling could find reemployment in other agricultural pursuits, or in machine industry.

SECRETARY:

Of course, let's remember that farmers have not set out maliciously to injure industry. Their aim is simply restoration of internal balance and healthy international trade. To get that, we need an excess of imports over exports. In 1929 we both exported and imported much more than we do now. Without injury, in fact with benefit to industry in general, as well as to agriculture, it would be possible to climb back toward the 1929 level, provided we increased imports more than we did exports. Certain very inefficient industries might suffer. No matter what course we take there will be a price to pay. No matter what course we take, there will be protests from certain highly organized groups. For example, there was very strong protest over the recent trade agreement with Brazil

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because it cut nearly in half the former 100 percent tariff on manganese. In fact, the protest was startlingly loud when you consider that even in good times the domestic manganese industry employed only some 354 people.

EISENHOWER:

I have heard the plea advanced that manganese is necessary to national defense, and therefore we should keep the industry going.

SECRETARY:

Granting the necessity of manganese for national defense, wouldn't it be better then, to conserve our own supplies in peace time?

EISENHOWER:

It would seem so. Well, we could have a lengthy argument on some of the points advanced so far. We have pointed out several different schools of thought. One holds that it would be better for the nation to forego both exports and imports, save for a few items, and build up a self-sufficient economy; another that the pain of such a course to the farmers growing and the business men handling the export crops would be intolerable, that in order to avoid such intolerable pain we have got to admit more imports.

OLSEN:

I would add that such a course would not only be very difficult for farmers; it would reduce the total national income.

EISENHOWER:

Addition accepted. Now I raise the question -- what might we import, saying that we do want more imports?

SECRETARY:

There is the question which will involve farm people and factory people in bitter conflict, unless they are able to work the thing out coolly and intelligently, and in a spirit of fairness, one toward another.

We have been saying that the pain to agriculture of contracting to a domestic basis would be very severe. But the people in agriculture must realize that to some industrial groups the pain of letting in more imports will also be severe.

If we go nationalist and contract agriculture we shall have to remove 40 to 100 million acres from export crop production. If we go all the way toward redeeming trade in farm products, we shall have to accept nearly a billion dollars more in foreign goods than we did in 1929.

This would necessitate going over the whole list of products and making a conscious decision as to what kinds we want to receive from abroad.

EISENHOWER:

But I take it, Mr. Secretary, you would not advocate going all the way to recovering the full foreign outlet which we once enjoyed for our agricultural products? In other words, what do you regard as a practical foreign trade program for agriculture?

SECRETARY:

The middle course is probably best although that is plenty hard. This would mean imports exceeding exports by several hundred million dollars each year. In such case we would need to keep out of production one year with another only about 25 million acres of crop land, instead of 36 million as was the case last year.

OLSEN:

And how would you go about making sure that we got export opportunities abroad in return for importing more?

SECRETARY:

For the moment the politically feasible method seems to be through the mechanism of negotiating and bargaining.

EISENHOWER:

Thank you, Mr. Secretary. Now we must close this session. Let me repeat that we are not today urging upon you people who are listening any particular line of thought. We hope this discussion will help you to study this and other fundamental problems for yourselves. Now, in conclusion, let me summarize some of the views brought out here, as well as others that we have not had time to include in today's discussion.

First, some people contend that the United States must live at home. It must produce everything it needs, buy as little as possible from abroad.

The second view is that the United States is part of the world, tied to other nations by the bonds of friendship, of humanity, as well as trade. We can only achieve maximum prosperity by removing trade barriers, at home and abroad. Those things we produce most efficiently, we ought to sell abroad as well as at home; those things other nations produce most efficiently, we shall want to buy from them.

A third point of view is that the old-time internationalism is dead. Free trade is impossible. But so is complete self-containment. The only way out is through reciprocal agreements with individual nations, to build up an interchange of goods on a basis of mutual advantage.

And some even hold another view, namely that our foreign trade will continue to decline, and nothing can be done about it. Our farmers can't compete with the cheap lands of South America, Russia, Australia. Europe, striving for

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self-sufficiency for purpose of defense, won't let us export there. Perhaps no country, including the United States, will attain complete self-sufficiency; certainly it is economically unsound to try for it; but that is the world trend, and it must run its course. The only thing we can do is keep our export acres idle, or in grass or trees, and make what other internal adjustments we must.

There are a hundred variations on these viewpoints. They will come to light when any group of people meet to talk about this topic, "What Sort of Foreign Trade Policies do American Farmers Want?"

SALISBURY:

Thank you, Milton.

Friends of the Farm and Home Hour audience, you have heard the second of a series of seven discussions to be given in the Tuesday programs. The aim is to indicate some of the methods that may be followed in group discussion to bring forth the various points of view held by people in the group.

At the request of discussion groups and Land Grant college executives, a guide for the use of leaders in such discussions has been prepared by the Department of Agriculture. If you wish a copy send your request to the Assistant Secretary of Agriculture, Washington, D.C.

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LAND PLANNING IN THE TENNESSEE VALLEY

A radio talk by E. S. Draper, Director of Land Planning and Housing, Tennessee Valley Authority, broadcast on the National Farm and Home Hour, Friday, March 1, 1935, by stations associated with the National Broadcasting Company.

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When Congress passed the Tennessee Valley Authority Act in May, 1933, (among other conditions) it specifically directed the Authority to make surveys of and general plans for the orderly physical, economic and social development of said Tennessee Valley and adjoining territory. The construction program of the Authority included the building of great dams for navigation and flood control and the salvaging of the great natural resource of energy which these dams provide so as to prevent its waste. This will flood so many square miles of land and so change the physical arrangement in large drainage areas as to require rebuilding of highways, railroads, and bridges. It will mean the movement of people from villages and rural areas, a revamping of the use of the land.

The people who move out of the Norris and Wheeler reservoir basins must live somewhere. The majority will wish to live in the same region because of similarity of ways of life, whether it be farm or forest, manufacturing or business. Others will move farther away to seek new opportunities. There is a chance to help them all in making a wise adjustment. Those who move from the Norris reservoir will find good agricultural lands scarce in the immediate region. We want to see these people succeed, not only for their own interest but from the standpoint of public welfare. They should have, and are being given, help through existing state agencies in selecting suitable lands on which they can make a living or their coming will prove a burden to communities already heavily taxed for the support of schools, highways, and the like. In cases where people from the reservoir areas plan to move to distant sections, wise guidance is of even greater importance. Let's help such people to get a new start in life and to make the best use of their own knowledge and ability. Remember, it's help not dictation that we're offering.

So much for the people. What about communications? The Norris reservoir will flood several important highways, of which State Highway #33 is an example. People travel this road coming from considerable distances. We had to consider their needs as well as local interests in relocating this highway. Two railroad lines have to be moved. There are examples of other adjustments which must be made, but these ought to show that planning is needed. Throwing a stone into a pool of water causes ever widening ripples extending outward from the point of impact. So likewise do the problems arising out of the construction of each reservoir spread out over a large area and affect distant activities.

Let me digress long enough from the Tennessee Valley to stress the human and lifelike side of Land Planning. It is not just a theoretical study of land use, unconcerned with people or private rights. It is not a superimposed plan of perfect highways, recreation areas, communities and farms. Nor is it new in American life. Wherever land has become valuable, man has attempted to get the most out of it. The early New England settlers carefully planned their farms and their villages. On their judgment as to location their lives often depended just as their food supply hinged on their knowledge of the land, its fertility and adaptability to crops. For several generations after the opening of the West land was so cheap that planning was unthought of. Waste of natural resources, of forests

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and minerals during this period made us increasingly conscious of the need for land conservation, which is one of the first stages of Land Planning. Another urge to planning came in the rapid increase in land values in our cities and suburbs in recent decades. (The outstanding example is Manhattan which was bought from the Indians for $24.00 in trinkets May 6, 1626, and has since risen to values unparallelled in the history of the world.) Still another development leading to planning grew out of the fact that great scenic areas were threatened with destruction by private interests. Through wise planning many were preserved. All of this relates to Land Planning, and is an expression of the interest of society in the use of the land. The gradual piecing of the pattern of land use together -- like the pattern of a quilt -- with the safeguards that are needed to insure reasonable use, has made us realize that Land Planning is needed to coordinate the various uses of land that human occupancy requires. No longer do we have in the United States a series of communities and farms fringed by unclaimed wilderness. The good lands are all occupied. To get the most out of them we Americans must be intelligent in seeing that each parcel, each area, each great region has its rightful use. We must be sure that the ways of serving the land, our highways, railroads, canals and utilities -- which form the network on the land -- are properly located.

The National Resources Board has recently issued a valuable report on the resources of the country and the ways in which they can be used and protected to advantage. These broad theories and generalizations must be tested and applied. One way to find out the practical way to do these things is to try in an area smaller than the whole United States but large enough to contain city land, farm land, forest land, areas of scenic and recreational value, industrial developments, varying topography and climate, and a diversity of people and of natural resources. Such an area is found in the basin of the Tennessee River. Following the Tennessee River from the mountains of North Carolina to the cotton fields of Alabama are to be found problems of life and land occupancy as varied as the country at large.

A farmer to be successful must know his land. He must be familiar with what it will produce, what fertilization it needs, its rocks, its woods and all the local conditions. Just so must the Tennessee Valley Authority, as a part of its water resource development program, examine and understand conditions in this Valley in which there live two and one-half million people, citizens of seven states. We are now engaged in finding out what are the conditions in the Valley. You may well ask: What information are we getting to assist the people in making the best use of the land? We are working with all kinds of governmental agencies in investigating the kind of land, how much of each kind there is, and what each kind is good for. We are gauging the rivers and rainfall, and studying the climatic variations. With the assistance of the Geological Survey we have made aerial photographs of the whole Valley and are piecing them together in pictures so we can get a "bird's-eye" view of different sections. We are making engineering surveys of various kinds. We are mapping forest lands of different classes. We are listing and analyzing the mineral deposits. When we are through we will have the most complete inventory of resources of any section of the United States, available not only for our own use but for the benefit of all the people concerned with this great area.

So that you won't get the notion that when we get this data together we will then make a plan and call it complete, let me state that a land plan was started with the earliest pioneers, and will never be finished. Daniel Boone, choosing a trail into Tennessee over the passes of the Blue Ridge Mountains,

unconsciously planned the white man's first highway! Future inventions will require many more changes in highway transportation. Such work is never finished. And our Land Planning in its fullest sense seeks merely to sketch a pattern from a more complete knowledge of resources which will aid people to make the best use of the land. The Plan is never completed. Every highway, every public building, every subdivision fills in the details. At best, we can seek merely to guide and to offer the complete knowledge of conditions that has been gathered. Private initiative will continue. It will undoubtedly make full use of our plans.

What are we doing for the improvement of the land in the Tennessee Valley, you ask. The dams that are being built for the purposes before stated bring many physical problems with them. Soil erosion must eventually be controlled if we are to maintain a civilization based on the land. Direction and assistance in attacking this problem has been offered to everyone of the one hundred counties in the Tennessee River basin, and their response in the organization of erosion clubs and the efforts of the people to do proper terracing on their farms will do much to stop the flow of our top soil into the rivers with consequent silting of the dams. The people themselves are doing this enthusiastically.

Reforestation is an important part of erosion control. Under TVA direction three million seedlings of locust and pine are being set out this Spring, with the expectation of the nurseries providing another ten million young trees to be set out in 1936. Another forestry problem that is receiving consideration is the existence of scattered tracts of badly eroded and abandoned shale land unsuitable for farming. There may be several million acres of this type of land over the Valley which occur in tracts too small for proper administration as national or state forests. It is hoped that some policy of administration can be worked out so that these lands can be developed as protection forests to reduce silting in the reservoirs.

In our land Planning work we are checking with governmental and state agencies on their public works programs. Carrying out our program necessitates cutting across state lines. We want to be of as much help as possible on all interstate problems for development of their natural resources.

As a part of our construction program we have built the town of Norris with its "Freeway" connection to Knoxville -- the housing development at Wheeler Dam, with the new community at Pickwick Landing Dam under way. All fit into the picture of a better use of the land, as well as being part and parcel of our construction program.

You have sensed in this hasty review of our physical land planning work a combination of "planning" and "doing." In that lies our strength. We have through our construction program an opportunity to provide demonstrations for the benefit of the people of the United States. We are not restricted merely to "paper planning." Where we are faced with the physical and human problems that affect the changes of life and activity through construction of a series of dams and reservoirs in the great Tennessee River watershed, we do have a real opportunity to put theories to test. In the practical solution of these land problems may be found results of great value to each and every individual, answers to the question of how well may our people utilize the country's resources to improve standards of living.

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LAND PLANNING WORK OF THE STATE PLANNING BOARDS

A radio talk by Charles W. Eliot 2nd, Executive Officer, National Resources Board, broadcast Friday, March 1, 1935, National Farm and Home Hour.

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We must all be interested in the future use of the land resources of the United States, for the strength and security of the nation must depend upon our wise use of these resources. We are passing from an era of free exploitation of land into a new era of conservation. The old frontier has been closed, and homesteading has practically ceased. The remaining parts of the old Public Domain are being organized into grazing districts, forest units, and biological reserves.

A new frontier must be faced. It lies behind us in the areas which we have exploited or unwisely used and where maladjustments now demand attention. A new Public Domain is growing through reversion to the State of tax delinquent lands and the necessity for public controls and public ownership over areas which have been misused in the past periods of exploitation. The old public lands were and are primarily a responsibility of the Federal Government. The new Public Domain and the new frontier are problems primarily for the States to face.

For some years enthusiasts in the field of conservation, students and teachers in the State Universities, and leaders in a variety of organizations have foreseen this change in our land problems and the necessity for State organization to meet them. The Land Use Committees of the Land Grant Colleges have been working in this field for some years, and a book, entitled "What About The Year 2,000?", published in 1929 by the American Civic Association, points out the fundamental issues involved in the new public land policies.

Now these various individual and group efforts are being pulled together in the State governments through the organization and work of State Planning Boards, and in the Federal Government through the National Resources Board. With leadership provided from the experts in the various bureaus of the Federal Government and through assignment to State Planning Boards of Land Planning Consultants much new data and many significant facts have been brought to light. The State Planning Boards in their various reports, and the National Resources Board in its report, have been able to lay down the first rudiments of a general planning policy for land use.

There are now 44 State Planning Boards, set up by the Governors or backed by new legislative authority. During the last year fifteen laws have been passed by State Legislatures to establish State Planning on a permanent basis, and bills have been introduced in seventeen additional States. The State Planning Boards are usually composed of a few State officials and a few private citizens, from the State University, Land Grant College or private life. These boards have almost invariably set up special study groups for land problems, with a view to bringing together inventories of the State's land resources and to outline programs and policies for their more effective use.

This sounds very general and perhaps ineffective, but the methods pursued have always been directly related to immediate problems and possibilities. They have dealt with what we call "problem areas" and "settlement areas." It is hoped that through the analysis of areas where something seems to be wrong in the

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balance of uses or economic status of the people, we can find ways to help the occupants and make more effective use of the land resources. This is not aimless planning, because there is a real chance of our being able to do something about these problem areas through the Submarginal Land Purchase Program, National Forest purchases, grazing district organization, Soil Erosion Service, and similar land agencies of the Federal Government working in cooperation with the States. There is a chance to give the people who are now fighting against fate on lands that will probably never give them a decent livelihood a real opportunity to better their conditions and provide for their own future.

At the same time that the State Planning Boards are studying problem areas, they are also seeking to find the best lands for new settlement or for closer settlement. The Land Consultants assigned to the State Planning Boards are hard at work on that part of the program also. Through the various Federal resettlement agencies of Rural Rehabilitation, Subsistence Homesteads, and the Reclamation Service, we can do something about settlement areas, so that this planning also has a practical significance. The States can do much to help through encouragement of zoning by counties and local governmental units, through consolidation of county governments, school districts, etc., with consequent reduction in the costs of government, and through more equitable laws on tax delinquency, which would clarify the State's title to delinquent lands and permit energetic steps towards better use of the area.

The frontier is always an area of hardship. The problems of the new frontier are due to maladjustment of land use or the economic status of the people who live in problem areas. The new public domain is growing out of the reversion of these lands to public ownership, whether through tax delinquency or purchase. We must restore the productive capacity of this new public land as a State and national resource and find effective use through forestry, recreation and other means for the lands which are no longer fit for crops.

This is the great program for land conservation on which the State Planning Boards and the Federal Government are now cooperating.

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OUR 4-H GARDENS ARE SUCCESSFUL DEMONSTRATIONS

A radio talk by Wilma Ryan, 4-H club girl, Allegany County, Maryland, delivered in the National 4-H Club Radio Program, March 2, 1935 and broadcast by a network of 59 associate NBC radio stations.

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We have learned that it is cheaper to plant our gardens so that we may have fresh foods for our table and fresh vegetables to can. The food bill is the biggest item of expense in our home. This is lessened by having our own garden. "Money saved is money made" you know, and by having a garden we form habits of thrift. Our family, including Father, Mother, and five children, like every other American family, must be properly fed to be happy. This can best be accomplished by having throughout the year, an available supply of fresh and proper foods from the gardens.

The father of a Maryland 4-H girl was out of employment. This girl came home from a 4-H Club meeting and talked enthusiastically about the garden project and showed the garden bulletin to the family. Her father became interested and he, too, decided to make a garden. This Club girl and her Mother learned to can their garden products from demonstrations given at club meetings. They had a sufficient amount of vegetables canned and stored to supply the family for the entire winter. This family had been sickly from undernourishment. Due to proper diet, which the girl learned at club and practiced at home, the family is now in better health.

One Maryland 4-H Girl proved that her vegetable project paid. Her plot measured forty-one by thirty-four feet. Her brother plowed and prepared the soil for her and she planted and took care of it. Raising nineteen different kinds of vegetables, she sold products amounting to thirteen dollars and fifty-four cents. She also canned some of the vegetables not sold. She enjoyed the project and found it worthwhile.

"There are NO GAINS WITHOUT PAINS," was one of Richard's maxims. I believe that too, for while I canned through the hot summer months, I often wished to go swimming. But I am so glad that I never gave up. From my canning I received sixty-five dollars besides many useful articles offered by the contests in my six years of 4-H Club work. Our county received several hundred dollars in prize money for canning and in 1934 established a three hundred dollar scholarship loan fund. At present this fund is helping a 4-H Girl to complete her senior year at college.

My garden gives me skill in working with my hands which will be valuable in whatever work may follow later. It gives me profitable work that I like. It is very interesting to watch the tiny plants grow and it just seems like a game while racing with my sister to have a better garden than she has. We compete in keeping our enemies, the weeds and insects, from our vegetables.

In 1934 Garrett and Allegany County 4-H Girls went camping together. As finances were low, the girls were encouraged to raise products to apply

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on their camp enrollment fee. Out of the one hundred and two girls enrolled, eighty-seven paid all or part of their enrollment fee with fresh or canned garden products.

My sister and I, as well as many others, could not have attended Camp Algajoy if we had not had this opportunity.

Flower gardens are also profitable. One 4-H Girl raised flowers to sell as she and her mother marketed food products. She bought some clothing and school supplies with her flower money. Besides money value, our flower gardens have given pleasure and beauty to many homes. Our Gardens help us to "Make Our Best Better" and develop the 4-H Pledge.

Four-H Club work is planned to train Head, Hands, Heart, and Health and certainly our 4-H gardens demonstrate this training.

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RAISING POULTRY FOR PROFIT AND SATISFACTION

A radio talk by Anthony Famighetti, 4-H club boy, Nassau County, New York, delivered in the National 4-H Club Radio Program, March 2, 1935, and broadcast by a network of 59 associate NBC radio stations.

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How do you do, 4-H friends, and especially you poultry club members.

Poultry keeping has been one of the most profitable enterprises on farms for a number of years. Not only are chickens raised for profit, but some poultrymen get a great deal of satisfaction raising them as a hobby. We have such cases right here in Nassau County, New York.

For instance, we have Robert Simm and Richard Valentine, both club members, who raise poultry from a satisfaction view point. Robert is interested in the breeding of his birds. He has been breeding his large type and productive strain of Leghorns, with a more productive strain in an effort to bring out larger and more productive birds. Robert had the grand champion cockerel bird at the New York State Fair at Syracuse this past season and won the gold medal offered at our County Fair on another bird.

Richard Valentine is raising his stock in the method known as the battery system. You might call it a modern method, which I think will prove popular in parts of Long Island where homes are closely situated. This system looks very much like the exhibition pens at the fair, only of course larger. The flooring of his pens are of wire, with a mesh large enough to allow the droppings to fall on to an endless belt. The belt is as large as the pens, and by turning a handle at one end, revolving this belt, he cleans the droppings with a minimum amount of work.

Then we have Miss Adelaide Moelius, also a club member, who raises poultry for a profit, but her profit is in the sale of broilers, not eggs. However, she does keep a few birds for eggs, but only for the home use.

Milton Cohen, another 4-H club member, raises birds also for a profit. Milton is a ninth year club member, lives on a farm and thru his club work, interested his father in improved methods of raising poultry. They keep production records, on the laying flock and practice culling of the poor birds for sale. As a result, they always have a stock of approximately 2000 birds. Incidentally, Milton was one of the boys who was responsible for starting our State 4-H Egg Laying Test, now carried on in Horseheads, New York.

Whether it's for profit or for satisfaction, that you raise poultry, don't let it prove an expense to you.

Before, I took up the poultry project, my parents had been keeping birds for our own use. They were birds of mixed breeds and very poor egg producers, and really proved an expense to keep. Then, with the aid of Mr. George Burkhardt, my club agent, and Mrs. Louise Dawley, New York State 4-H Poultry Specialist, I rearranged my coop, improved the method of feeding, and purchased with their approval, an entirely new stock of birds. From

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this new stock I culled out the poor layers and small birds, leaving me with a profit-making stock.

At present, these birds are producing 14 percent more eggs per month than the standard of pullets of ten months as shown on the Cornell Egg Chart. I have a good market for my eggs and receive a good price, so you can see I am perfectly satisfied with my birds. As Mrs. Dailey says, "Why keep boarders?" "Get rid of them!"

One advantage, we have here on Long Island, is the sale of eggs direct to the home, giving us the money that ordinarily goes to the store keeper and salesman for their services.

However, we are working on a plan which will bring us still greater profits--the offering of a 4-H Dozen to the home. We are having our own boxes made in club colors, with the 4-H Emblem on the cover. Eggs we sell will be guaranteed. Each egg will be candled for interior quality and graded to insure perfection of both interior and exterior quality. The guarantee will also certify that the eggs are of a standard weight and color.

It is through this particular care in the sale of eggs that we hope to build a select trade with a better profit for the 4-H club members.

While we are doing this for a profit, we are getting a great deal of satisfaction doing it the 4-H Club way.

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PLANNING THE GARDEN ON THE BASIS OF HEALTH NEEDS OF THE FAMILY

A radio talk by Mrs. Henry Middleton, Farm Woman, Warsaw, N. C. delivered in the Home Demonstration Radio Program, March 6, 1935, and broadcast by a network of 49 associate NBC radio stations.

--ooOoo--

I am to tell you today what a year-round garden can mean to the health of a farm family.

In my family, consisting of my husband, four children, and myself, we have had a daily supply of vegetables from our garden for the past four years. As a result we have had to call a doctor very seldom and for twelve months did not even consult one. Each child has gained in weight. They look and seem perfectly well and are bringing home better reports from school than ever before. I believe this is principally due to our year-round garden upon which we have grown more dependent each year.

We learn in our Home Demonstration Club that if we are to enjoy good health we should have at least three servings of vegetables daily; a leafy vegetable, a starchy one, and another, preferably a root vegetable. These are the foods that supply us with vitamins, mineral matter, and roughage.

Through garden contests our family learned to follow a planting schedule which give us a variety of vegetables the year round. We live in Eastern North Carolina and the mild weather permits us to grown green things all through the winter. Our garden is an acre in size and we grow it first to supply the family table, can all we can, and sell any surplus that is marketable.

During the year we spent twenty dollars for seed besides using all the seed we had saved the year before.

We had all the fresh butter beans we could eat, as well as bush and pole string beans and English peas. We sold seven dollars and eighty-five cents worth and dried three pecks for eating in the winter. Onions and field peas fresh and dried were also on our table all through the year, and I sold fourteen dollars worth.

We actually sold ninety-dollars and fifty-eight cents worth of cabbage, after taking out expenses, and thirty-seven dollars and seventy-five cents worth of cabbage plants.

Our turnips were planted in September and I began selling turnip salad, or greens as some call them, In February and sold thirty-five dollars worth. The thinnings, formerly thrown away, brought me two dollars and a half which I spent for oil to use in my raw vegetable salad.

We planted two crops of Irish potatoes and had potatoes all through the year.

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That we might have plenty of vegetables to eat raw, we planted tomatoes in our little green house the first of February. From three different plantings we had tomatoes from the middle of June until the middle of November, ate them daily, canned thirty quarts, and sold forty dollars and fifty cents worth at an expense of ten dollars and a half.

We are now eating collards, broccoli, turnips, mustard, onions, and cabbage fresh from the garden.

While we were in the garden contest, we served an average of nine and three-quarters vegetables each day.

Our cash income from the garden averages around one hundred and eighty-five dollars a year while the average cost of making it is forty-five dollars.

The vegetables eaten at market price range in the hundreds of dollars. When you count the saving on doctor and drug store bills - and the time saved through the maintenance of good health for a family of six - there are no figures which I could give you that in any way express what our garden has been worth to us.

While we work to grow vegetables to feed our bodies and keep them well and strong, there has always been a place in our garden for flowers. There's always a vase of fresh flowers placed on the table each day. Did not Mahomet wisely say, "If thou hast a loaf of bread, sell half and buy the flower of the narcissus; for bread nourisheth the body but the flower of the narcissus the soul."

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WHAT KIND OF LAND POLICIES DO WE NEED?

A radio discussion among M. L. Wilson, Assistant Secretary; Mordecai Ezekiel, Economic Adviser to the Secretary; and M. S. Eisenhower, Director of Information, broadcast Tuesday, March 19, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 51 associated radio stations.

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SALISBURY:

It's discussion time again in the Department period of the Farm and Home Hour. Each Tuesday three or four members of the Department staff meet here to talk over briefly one of the questions currently being discussed by organized groups of farm people. The persons taking part in the radio discussions try to bring to light various points of view on the problems placed before them. Their aim is not necessarily to urge the adoption of specific solutions. It is, rather, to indicate the reasons advanced by leaders of different groups which favor alternative solutions.

The question before us today is What Kind of Land Policies Should the Nation Have?

At the discussion table are the Assistant Secretary of Agriculture, Mr. M. L. Wilson, the Economic Adviser to the Secretary of Agriculture, Mr. Mordecai Ezekiel, and the chairman for the meeting, whom you will hear next, the Director of Information for the Department, Mr. Milton Eisenhower.

EISENHOWER:

Thanks, Morse, and hello, everyone.

Before our discussers get down to work presenting pro and con views on the question of what sort of land policies the nation should have, I think we ought to ask them a preliminary question: Why have land policies at all, other than the policy of free and unplanned ownership and management of the land by American families? I have heard the argument advanced that to tamper with the individual's right to do as he pleases with his land is to tamper with the heart of our genius as a civilization. Granted that lands have been abused in this country, some people say, to enforce any system of planning of the use of land would be more damaging than to wait for individuals to learn that it is to their own self-interest to conserve land resources.

M. L., we'd be interested in your comment on that proposition.

(over)

WILSON:

Well, Milton, I wonder where you dug up, in this year of grace, 1935, anyone who would seriously make an argument against any planning at all of the use of land. He would have forgotten just about everything that has happened in the past 30 years with respect to conservation of natural resources. With the Roosevelt-Pinchot conservation movement early in this century, we turned our backs upon the idea of unwise policies or absence of policies which tended to waste land resources. The idea of planning and acting to conserve has grown steadily since then. I think few people quarrel with the general principle now.

EISENHOWER:

All right, then, I guess you're right. Most of the people of the United States agree with this general idea of conservation, and feel we have to do something to prevent land waste. The United States is a big place, and it's got a lot of land in it that is not farm land. They've measured it all up to be just about 2 billion acres. But only about one billion of our land has ever been enclosed in farm boundaries. And less than a quarter of the whole acreage has actually ever been in harvested crops in any year. But at the same time, the good land is almost all settled up. And no more fertile, free lands are left, such as those the pioneers used to homestead. And on the lands now in cultivation soil depletion and erosion are rapidly becoming serious problems. Many American families find themselves living upon lands that fail year after year to yield a decent standard of living.

First, we might lead off by looking at the one billion acres not needed or fitted for farm production. What ought we to do with that land, Zeke?

EZEKIEL:

Of course there are lots of things that we need to get from land besides farm products. There are grazing for livestock, timber for lumber and firewood, forests and parks for enjoyment and relaxation; there is hunting and fishing and the native birds and animals of the country; and there is protection of our streams and run off of rain; all of these depend on the way we use our non-farm areas. As a whole, it seems that this land should be handled so that it can produce as much of these things as we need with the smallest amount of labor and the least cost to the people of the country. A balanced use of these non-agricultural areas would envisage a proper allocation as between intensive timber production, parks and wild areas for recreation, refuges and breeding grounds for wild life, and desert and wild areas in their native state. If we strip this land of cover and let it waste away by erosion, silt up streams, produce floods, and let it degenerate to gulleying wastes, it will provide none of these things.

EISENHOWER:

No voice being raised in disagreement with that general principle, suppose we go on to consider the matter of policies affecting the use of land now in farms. Discussion about the necessity for such policies and the form they should take has certainly been rife in recent years. The issue is acute in sections where much farm land has been abandoned. Maybe that's a good starting point. Why have farmers in some sections abandoned many parcels of land?

WILSON:

Obviously, Milton, because the land wouldn't yield them a decent living, as you commented a moment ago.

EISENHOWER:

And why wouldn't the land yield a decent living?

EZEKIEL:

Much rough, infertile land was settled in the early days, that couldn't stand the competition of the better lands opened up later on. In New England, New York, and along the Atlantic Coast generally, land has been going out of farms for 50 years or more. In some of the newer sections, settlers have been lured to land not fitted to farming at all. Such land as the cutover areas in some of the Lake States.

In some sections, settlement, abandonment, resettlement and abandonment again has been the tragic story of use of the land. In some of the Western areas they say it takes three waves of settlers to lose their savings before the land is finally settled--or abandoned. A great many people have been victims of this process.

EISENHOWER:

And the recent victims are now stuck there, I suppose; they can find no opportunity elsewhere, if they wish to abandon the land?

WILSON:

It's not only the recent victims who are stranded on the submarginal lands in a good many places. Families whose ancestors formerly managed to eke out a living at a low standard from such lands now can't make a go of it at all. Besides, their relatives who had gone to the towns to work have been forced back to the land. The population is growing in our rural slums.

EISENHOWER:

For that matter, the city population that must live at slum standards has increased in the past few years. I wonder which is worse, to have people living in city slums or on submarginal lands.

(over)

EZEKIEL:

Well, Milton, I'd hate to think that we had to make a choice, permanently, between those two evils. But if you must make a choice, I'd say that the city slum life is worse.

WILSON:

On the other hand, a good many would say that life in the rural slums is even harder on the morale of people. They feel that the outlook is less hopeless for the employable man who is temporarily jobless in the city than it is for the able-bodied, competent person who is stranded on a submarginal farm.

But, like you, Zeke, I'm not willing to concede that any large group of our people have to choose between either of the two evils. It's plainly the duty of their more fortunate fellows to give them a helping hand out of the slough of despond and degradation.

EISENHOWER:

And that's the reason, I suppose, for the gathering momentum of the drive for planning and action to deal with the submarginal land problem.

WILSON:

There is another reason, too, Milton. The years of agitation and education of the public to causes of distress of all farmers made people realize that we have a farm plant that will in years of average weather turn out more than we can sell since we have lost so much of our foreign market. A great many people searching for a solution, have decided that a vital element in any solution, for the present and for the future, is our land policies.

But we probably have been inclined to put too much trust in the balancing effect on commercial production of enabling the farmers on submarginal land to leave it and find better opportunities elsewhere. H. R. Tolley recently gave a talk in this Farm and Home Hour summarizing some phases of the report on land planning of the National Resources Board, and he gave the figures showing what a relatively small fraction of the total production of the export crops would be removed by putting 75 million acres of the submarginal land now in 454 thousand farms to other uses and giving the people on those farms a new chance.

It was apparent from our study of the problem that the big thing to be gained by putting submarginal farm land to better uses was the welfare of hundreds of thousands of stranded families, not adjustment of commercial farm production. Adjustment of commercial farm production is a matter for cooperative action by the individual farm operators.

EISENHOWER:

Probably a good many listeners will recall that summary of the report Doctor Tolley gave, M. L. By the way, I guess we neglected to tell the audience that Mr. Wilson is chairman, and Mr. Ezekiel a member of the land planning committee which helped prepare that report.

Now returning to our discussion, I think we've reached a point where we should raise the question, If the Government continues a policy of buying submarginal farms, as recommended in the NRB report, where will the people now on them find better opportunities?

EZEKIEL:

That is a big question, Milton. It is obvious that it isn't going to help matters to take people off submarginal farms if that means they'll go on unemployment relief somewhere else. Instead, we're trying to organize the submarginal land withdrawal program so as to make sure that there is some place for the people to go where they will be better off than they are now before they move. In each area selected for purchase of submarginal land, we buy the land from the people who are ready to sell as rapidly as they are ready to accept the Government's offer; but then let them stay on the land until arrangements have been worked out for them to settle in better circumstances somewhere else.

EISENHOWER:

Where do you think the opportunities will be found -- in industrial employment, or in farming?

EZEKIEL:

As a whole there isn't much chance for the people on submarginal land to better themselves by farming somewhere else. We already have more farm products than the present demand can buy, and the men already in commercial farming can produce a lot more than they now produce. To live better in their new locations, most of the men now on submarginal farms must settle where they can get their major income from industrial employment. That does not mean they have to move to the cities. The tendency toward decentralization of industry and such activities as the TVA may tend to develop many new industrial centers away from the present congested urban centers. But whether they move to the outskirts of the present cities or to new industrial areas, most of the people now on submarginal farms must look forward to shifting to places where they can get most of their cash income at least from industrial employment, even though they continue to produce vegetables, eggs, and possibly milk for themselves. I am inclined to think too that it isn't going to pay for them to move until the industries in which they work have been established. If we move a lot of people into an area in the hope that industries may find it profitable to develop there, we may find in the end that we have sunk a lot of capital in building up a new community for industries which never develop, and stranded the settlers where they will never be able to make a living.

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EISENHOWER:

That statement about the desirability of finding industrial employment for a large share of the people now stranded in rural slums, teams up with a recommendation in the NRB report to raise a final question. The recommendation I have in mind was to the effect that no steps be taken to facilitate a substantial movement of unemployed people from urban areas into commercial agriculture. The question that it raises is this: If and when a Government program for continued purchase and retirement of submarginal lands goes into effect, will not the last remaining refuge disappear for families who can't get city employment and who can't afford to buy good land?

EZEKIEL:

I am not sure that you can call living on submarginal land much of a refuge, Milton. All through the East here you can see families trying to keep alive and comfortable in tiny tar-papered shacks that have been built in the last two or three years. Most of them only have a handkerchief garden to live from. You can't maintain a decent living on a little vegetables and a leaky shelter. There is no reason why this rich and prosperous country should not help those whom the depression has temporarily thrown out of regular jobs, find an opportunity to earn a real living.

EISENHOWER:

We all join you in that hope, Zeke. But until methods are developed which do afford a chance for a real job, there will be much questioning of any policy which in any way seems to forbid access to the land to any family that wants to try its endurace against nature. Now, M. L., to wind up this session, I know we'd appreciate a brief summary of the major points in land policy recommended by the National Resources Board.

WILSON:

One point is the retirement of submarginal land, which has received most of our attention today. The report advocates retiring some 75 million acres over a period of 15 years or longer. During that time, the families on the retired land may find a new and better chance elsewhere.

A second point is action to enable farmers now on parcels of good land too small to provide a decent living, to make their holdings large enough, and to give the families displaced opportunities elsewhere.

A third point is action to control erosion and check the terrific wastage of our resources it now causes.

A fourth point is action to set up means of guiding future settlement of land so as to avoid the tragedies of the past. There are many specific recommendations here, but I shall not detail them.

As a matter of fact there are many specific recommendations in each broad class of policies advocated in the report. Before the policies can be adopted and translated into action they must of course have the approval of the American people. There will be plenty of discussion, especially by people in the sections directly affected by each proposed policy.

EISENHOWER:

And we hope that these brief radio discussions will be helpful as a means of indicating some of the viewpoints on the major issues. However, the really fruitful, problem-solving and opinion-forming discussion is going to take place in the communities of the country.

To assist in the conduct of such discussion groups, the Department has issued a brief guide. This has been done at the request of Land Grant Colleges which this winter have accepted the call for leadership in forming the groups. Any one in this audience interested in the matter may have a copy of the guide. Send requests to Assistant Secretary M. L. Wilson, Department of Agriculture, Washington, D. C.

SALISBURY:

Thanks, Milton, I'll repeat that address for anyone interested in obtaining a copy of the discussion methods booklet. Send requests to Assistant Secretary M. L. Wilson, United States Department of Agriculture, Washington, D. C.

Mr. Wilson was one of our discussers today. The others were Mordecai Ezekiel, Economic Adviser to the Secretary of Agriculture, and Milton S. Eisenhower, Director of Information. The question for discussion was "What Sort of Land Policies Should the Nation Have?"

Next week on Tuesday we will dig in on this question: Should Farm Production Be Controlled as a Long-Time Policy? The diggers in will include Assistant Administrator H. R. Tolley of the AAA, Mr. F. F. Elliott of that organization's production planning unit, and Mr. Eisenhower.

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LAND PLANNING AIDS WISCONSIN AGRICULTURE

A radio talk by W. A. Rowlands, Assistant State County Agent Leader, Madison, Wisconsin, delivered in the Land-Grant College Radio Program, March 20, 1935, and broadcast by a network of 50 associate NBC radio stations.

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Wisconsin has no gold, no oil, no coal. Wisconsin has a rich heritage in productive farm lands, extensive forest lands and ideal recreation lands and waters, and industries based on all three. Wise planning for the best future use of these resources has been one of the most important undertakings which the state has engaged in.

The people of Wisconsin are aware of and awake to the real need for land planning. Idle lands, vanishing property values and stricken communities throughout America bear silent testimony to the price we must pay for the planless exploitation of our basic resources.

The form of the plan which is now shaping the destiny of these land resources is embodied in a principle that is old in the cities, but which is being applied to an entirely new set of conditions in the counties. That principle we call zoning.

Under the County Zoning Law passed by the Wisconsin Legislature in 1929, County Boards of Supervisors are empowered -- "***** to regulate restrict and determine the areas within which agriculture, forestry, and recreation may be conducted ****" Action to establish by law special use districts and to provide suitable regulations for the protection of the property in the several use districts is zoning.

In its older application in cities one of the primary purposes of zoning is to prevent the lowering of property values resulting from uncontrolled development in densely settled areas. In its newer application in rural areas in counties one of the primary purposes of zoning is to prevent increases in government costs resulting from uncontrolled development in sparsely settled areas. In addition, county zoning will prevent the needless waste of both human and financial resources in unwise settlement. It prohibits the settlement of the poor land and directs settlement toward the good land. In both the city and the county, zoning stabilizes land values, and provides a workable method of putting community planning into effect.

In Wisconsin, eighteen counties have enacted county zoning ordinances, and by this process approximately five million acres of land -- much of it tax delinquent, isolated, and non-agricultural -- has been closed to future agricultural settlement. Another group of seven counties is in the process of enacting similar zoning ordinances under which an additional million and a half acres of land will be closed to agricultural use. These twenty-five counties contain almost all the territory in Wisconsin needing the protection of this type of county zoning ordinance.

This new movement was not established over-night. For ten years many state and county agencies have surveyed, mapped and studied the land and

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economic situation throughout the state in order to arrive at a plan that would be of permanent value to Wisconsin lands and to Wisconsin people.

The essential principles involved in county zoning are now considered sound and a proper function of the police power regulations. Local residents, land owners, and county officials feel that these self-imposed restrictions are necessary, reasonable, and in the interests of the public welfare. They realize that it is only through a reasonable control of land use that uneconomic and wasteful forms of development may be prevented.

By officially attaching a destiny to the lands in the several use districts for agriculture, forestry, and recreation, these Wisconsin counties are now in a position to apply special plans for their development.

There are three important lines of action to be taken in Wisconsin following the enactment of such ordinances. The first of these is: The relocation and rehabilitation -- on a completely voluntary basis -- of isolated settlers now living on land too stony, too hilly, too swampy, unfitted for good agricultural use, and where they are also too far from markets, from neighbors, and from schools. Second: The further blocking out of large areas of the isolated non-agricultural tax-delinquent lands, by sale, purchase, or exchange into public forest and public game areas for efficient protection and management. Third: The continued development of the good farm lands in established agricultural communities close to roads, schools, markets and community centers.

Wisconsin's zoning plan for land use will promote the development of only the best land for agriculture. It will preserve and enhance the great recreational values found in its lakes and streams. It will encourage the growing of timber crops, to furnish the raw materials on which permanent industries, permanent employment, and permanent business may be based. These constitute the fundamentals of Wisconsin's balanced plan of land use.

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TWENTY YEARS OF SHIFTING GEORGIA COTTON ACREAGE TO OTHER COMMERCIAL USES

A radio talk by J. William Firor, Prof. of Rural Organization and Marketing, Athens, Georgia, delivered in the Land-Grant College Radio Program, March 20, 1935, and broadcast by a network of 50 associate NBC radio-stations.

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Georgia is the largest state east of the Mississippi River. It contains 37 1/2 million acres. Less than one-third of this area is cultivated in crops annually.

When De Soto and his followers traveled through Georgia, the Indians furnished them with an abundance of corn, melons, and beans. Corn is still the great subsistence crop of the state.

But for over a hundred years, cotton has been the great commercial product of the land.

In addition to subsistence farming, prior to 1800, the settlers addressed their efforts to the production of silk, tobacco, rice and Indigo for commerce. These early commercial crops were pushed aside as cotton requisitioned most of the available capital and labor - land was, and still is, abundant.

In 1811, only 150,000 acres of the 37½ million of acres in the state were cultivated in cotton. One hundred years later, that is in 1911, 5½ million acres were in cotton. Possibly only 10,000 farmers were engaged in cotton growing in 1811, while in 1911 there were approximately 200,000 cotton farmers in the state.

Only about 10,000,000 acres are cultivated now. Of these cultivated acres, cotton and corn accounted for 9,000,000 in 1911, the year we reached our greatest expansion in cotton acreage.

In 1914, this century of cotton expansion - this one hundred years of stripping heavy virgin growth from the land to plant cotton and corn came to an end. The momentum of 100 years crashed into a stone wall of boll weevils and western competition. The result was a terrific social and economic shock. Cotton expansion for 100 years had built up a cotton people, farmers - 200,000 of them - trained in the specialized art of cotton raising; farmers and townspeople accustomed to a system of land tenure, a plan of credit and a method of marketing and merchandizing made by the nature of cotton. Then in two decades, this mighty industry shrunk fifty percent or more - the acreage planted to cotton declined from 5½ million in 1918 to slightly more than 2,000,000 in 1933 and 1934. It is necessary to mention that this decline was underway before the depression of 1929. Obviously, with the decline in this cotton industry there was no longer a need for all of those who had taken part in its development and expansion. Theoretically, at least half of the people were on the verge of being unemployed.

Three principle lines of attack have been followed during the last twenty years in meeting this situation. First, farmers expanded their corn acres, their best subsistence crop. Second, they search for new farming enterprises. And third many were attracted away from the farm to the industrial

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centers where wages were relatively high in the 1921-1928 period.

Tobacco which could not hold its own in the 19th century because of the comparative advantage of Sea Island cotton, had no difficulty in occupying 90,000 acres by 1926-30. The commercial peach industry that was in its infancy when the decline of the cotton enterprise started was quickly expanded to 10,000,000 trees thereby flooding the markets with early Georgia peaches. Acres to watermelons increased 200%, a new business of growing frost tender vegetable plants for shipment to northern states was capitalized by former cotton farmers, 30,000 pecan orchards were planted on old cotton land, peanuts were grown for oil, confectionary uses and also for fattening hogs, reforestation was directed and controlled to use idle lands and other uses found for the several million acres of land formerly devoted to cotton.

The line of attack necessary to take up the slack of a reduced cotton production is becoming more and more apparent from 20 years of hard but valuable experience. The rural population is now near its greatest height and is still increasing. The immediate future need is for the gathering together under wise and energetic leadership the forces growing out of our past and experiences and studies and directing these so that a profitable plan for using our land may be made and put into immediate operation; with the ultimate aim of getting the most money from our commercial production and the most satisfaction and enjoyment from our home activities - so that ultimately this enlarged rural population may find ways of producing and getting adequate supplies of the material things and also essential social services for a high standard of life.

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WHAT KIND OF RURAL LIFE CAN WE LOOK FORWARD TO?

A radio discussion among Dr. Carl C. Taylor, regional director in land planning, AAA; Miss Grace E. Frysinger, senior extension specialist, Office of Cooperative Extension Work; and Milton S. Eisenhower, director of information, broadcast Tuesday, April 2, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 51 associated radio stations.

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SALISBURY:

Today we present the seventh and final discussion of the series heard in Tuesday Farm and Home Hour programs of recent weeks. The question is: What kind of a rural life can we look forward to in the United States? Taking part in the discussion will be Dr. Carl C. Taylor, regional director in land planning for the AAA, president of the American Country Life Association, and widely-known authority on problems of rural life; Miss Grace E. Frysinger, senior home economist in the Office of Cooperative Extension Work, widely known also to farm women for her leadership in home demonstration work; and the man whose voice you will next hear, the director of information for the Department of Agriculture, Milton S. Eisenhower.

EISENHOWER:

Thanks, Morse, and hello everyone.

Every school kid -- and most of us grown-ups -- have always liked to think that American rural life on the whole gave farm people a larger share of material goods than farm people elsewhere had, and was generally the best rural life to be found. It is also true that the kind of life our farm people lead has been criticized and complained about. But by and large we liked to feel that we had an advantage. We were rich in land resources. Other nations were anxious to buy our farm products. We made extensive use of science and machinery to lighten drudgery and lower costs of production. It was comparatively easy to become owner of a farm.

In recent years our faith has been rather rudely shaken. Some of our lands are exhausted. Foreign demand for farm products has declined. And for the first time in our history, hundreds of thousands of rural families are receiving public charity. Naturally, we begin asking ourselves many questions. Will our rural life in the future descend to a lower standard? Or can we by planning and action raise it to a higher standard?

Is it any concern of the whole people whether rural life becomes more or less satisfactory? Are there values in rural modes of life so distinct from urban modes of life that they should at all costs be conserved and fostered by the nation?

Now, I've already asked more questions than could be answered today, but Carl, we'd appreciate your making a start on them.

(over)

TAYLOR:

Well, Milton, I should say first of all that the rest of the people of the nation have a genuine, selfish interest in maintaining a good rural life. For one thing, they want to eat. They get their food from the farmers. If the farmers can't get the satisfactions of life from farming, which they have a right to expect, enough of them will quit, in the long run, so that those who are left in the business will have enough income to live a moderately satisfying life.

But I see that Grace Frysinger here has some comments, too. Go ahead, Grace.

FRYSINGER:

Thank you, Carl. But I don't want to take attention away from your remarks. I was just thinking that there are social values in rural life that the nation will surely want to preserve. I won't dwell on the point long. Thousands of thoughtful people have pointed out that the close connection between the work and the play of all members of the farm family develops the strongest sort of family life and a high degree of individual responsibility. It trains children in the work habit and that is the basis of our civilization. The city man may succeed and the wife and children know not one thing of the father's business. On the farm all are helpers; all have responsibilities.

I won't push the argument further. It's well known to everyone, I think.

TAYLOR:

And the idea is also pretty generally held that we need a good rural life not only to maintain the quality of the farm population, but also to keep up the level of energy and character in the whole population, because the farms each year send hundreds of thousands of young folks into the cities to help carry on the work there.

EISENHOWER:

Certainly the ideas you two have expressed will have the approval of all farm people, and probably the majority of city people. There is general agreement that the way should be opened to a good life for rural people. But the question remains, is it possible? Is there any reason to believe that American rural life can forever be made superior to the peasant life of European countries?

FRYSINGER:

Your question assumes that our rural life <u>is</u> superior to farm life <u>everywhere</u> in Europe.

EISENHOWER:

Yes, I suppose it does. And I think that's the opinion generally held, isn't it?

FRYSINGER:

Probably it is. But I sometimes wonder if the American tenant farmer in some sections lives a life superior to the life of the small landed proprietor in, let's say, Denmark? What would you say, Carl?

TAYLOR:

I agree with the implications of your statement, Grace, but of course you have contrasted our worst with Europe's best. I don't think that's what Milton meant to do.

EISENHOWER:

No, I was thinking in terms of averages. Maybe I was thinking that our average farm living standard is higher than the living standard of European farm laborers and small landed proprietors in sections less favored than Denmark. Can't we agree, Miss Frysinger, that on the whole, our rural living standards in good times exceed those of the run of European peasants?

FRYSINGER:

Why, yes, certainly. I just wanted to make the point that there are peasants and peasants; that where the peasants have learned to organize and work together, where they have good land to work and enlightened people to work it. . .

TAYLOR:

And to work together in marketing and community life. . .

FRYSINGER:

Yes, all of that. Where those conditions prevail in Europe, the rural life sets us some sterling examples.

EISENHOWER:

Of course. That's why our farm leaders have so much to say about the lessons we can learn from Denmark and Ireland, and all. So we reach an agreement.

TAYLOR:

Before you leave this point, Milton -- there may be another aspect to rural life in Europe that has some lessons for us. Some people point to the constant shifts and movements in our rural population in contrast to the stability of the peasant people in some European countries. In Germany, for example, family-sized farms are handed down from generation to generation. I know of one farm that has been held by the same family for 800 years. Because of the knowledge that a member of the family would carry on, farm operators have kept up the fertility of their land. On the other hand, we have farmed as if no generations were yet to come. We have abused the land, and in many instances destroyed it.

(over)

EISENHOWER:

I'm glad you brought out those facts, Carl. In addition to what you say it's also true, isn't it, that when we think of European farms -- those of France, England, Germany -- we also think of the esthetic values. In this country we have slashed down the trees, drained the duck ponds, burned over the quail hide-outs, and put up advertising signs. I wonder if we all don't want to change this.

FRYSINGER:

Of course we do. Rural people in this country have just as much appreciation of the countryside, of esthetic values, as anyone else. We're beginning to plant the roadsides, put back those duck ponds, add to our forests, and farmers aren't all plowing their land right up to the fences where birds like to hide and feed.

EISENHOWER:

That brings us back to the question I was starting to ask a moment ago. How can we bring our rural life generally up to the best example set by Europe? We may be above it in some communities; we're below it in many. Does the way upward follow the path of increasing farm income? What do you say, Miss Frysinger?

FRYSINGER:

Well, certainly, the people in a farm community have got to enjoy a minimum level of income before they can have more of the material comforts to which they are entitled if they are efficient producers; and also before they can better their social life -- improve their schools and churches and hospitals and enjoy one another's company.

But higher farm incomes won't automatically solve the problem. You can take two communities of about equally satisfactory economic status, and find that one of them has first class schools and churches and health facilities and the people know how to work and play together; while the other has poor schools and churches and hospitals, lacks social life, and is torn apart by feuds and lawsuits and bad feeling generally.

I mean to say, the leadership you have in a community plays a big part in determining whether the life there is more or less satisfactory. Money isn't everything.

TAYLOR:

Not everything, of course, but a minimum amount of buying power is indispensible. Without that minimum economic status, you can't have anything much. With it, you can have a great deal, all of course depending on the ideals of the people and their leadership.

EISENHOWER:

You speak of ideals, Carl. Will you amplify that?

TAYLOR:

Why, in general I mean that, after getting an adequate income, the next essential to improving rural life is that the families that get the income make up their minds to spend it in a way that will give them a better life. In the past we have been dominated by a sort of speculation psychology. As a man made money from his farm he put it back into more farm land, not into better living conditions for the family and better institutions for the community. Often too, when families became fairly well off, they moved into town to enjoy the city's standard of life, rather than trying to improve rural standards. Surplus wealth has been drained constantly from rural communities. Many of our old habits and ideas have got to be given up before, even with adequate incomes, rural life can be made most satisfying.

EISENHOWER:

As Henry C. Taylor once put it: Farmers have got to eat their cake to have it?

TAYLOR:

That's the idea. That is, as I say, in the past the big impulse was to get more land and put it into cultivation. That worked beautifully in settling up the continent. Now the free land is gone. Foreign markets have been closed to us. Farmers have been in a dog-eat-dog competition, farming each other out of business. They have quit that sort of competition as they cooperated in the adjustment programs. Now if they will use increasing incomes for family living and community development, instead of for land speculation, -- and perhaps for unwise investments elsewhere -- they may develop a finer type of farm life.

EISENHOWER:

Well, to reduce your thought to a scheme, would it be fair to say that you think American farmers can escape from a peasant standard of living by adopting a two-part program; First, to organize cooperatively to secure fair prices and incomes; second, to learn to use that income if and when they get it for socially constructive purposes.

TAYLOR:

That's a good summary, Milton.

FRYSINGER:

In other words, then, farm families need organization, and new ways of thinking and acting to secure both economic justice and social advancement.

(over)

EISENHOWER:

So the answer to my question concerning the possibility of staying above a peasant status lies in organization for both economic and social ends. Now I wonder what would be some of the aims of a program of organized action. We hear it said lots of times that we can't have the kind of rural life we want in the United States without something approaching 100 percent farm home ownership.

FRYSINGER:

Well, that's a good mark to aim at. The supreme satisfaction of country life is the hope of owning a home of one's own and having the power to surround it with the things that the members of the family enjoy. But maybe it isn't necessary to own the home in order to have a feeling of identity with the land, and surround the house with the things the family enjoys. Just because a man is a tenant he isn't necessarily at a disadvantage. I mean the traditional idea of progress in American rural life is from farm laborer to farm tenant to farm owner. There is even a phrase for the process -- "climbing the agricultural ladder." We have looked on this as the normal process. I don't suppose we've ever thought that there will come a time when all farmers own the land they cultivate.

EISENHOWER:

No, probably not. But why is there such a fear of the spread of tenancy?

FRYSINGER:

Because there is a fear that the opportunity to climb that ladder is disappearing. We want to preserve the ladder, even if everyone can't stand at the top at once.

TAYLOR:

Well said, Grace.

FRYSINGER:

Carl, I've been very much interested in your idea about the bad situation that exists in many rural communities being caused by differences in economic status among groups of farm families in the same community. Tell us about your study in a middlewestern community.

TAYLOR:

Well, that study was made really in a community on the northern fringe of the cotton belt. The people on the land were nearly all tenants and laborers. The owners lived in the county town, not on the land. They were very wealthy. But the people on the land were very poor, and had very few social advantages. From what I saw there and have seen elsewhere in similar situations, I have concluded that you can't have a wholesome and wholehearted community life where there are great inequalities in economic conditions of groups in the community.

EISENHOWER:

So you feel it is harder for the tenant than for the owner to develop social ideals of the sort you were talking about, as well as to get a good material standard of living?

TAYLOR:

Not necessarily. But it is harder where there is a low-income group of tenants and a high-income group of owners all living in the same community. And by and large the owner of land, provided he isn't carrying an intolerable debt burden, is able to afford his family a more stable and comfortable sort of life, and to promote community betterment. It's a commonplace that the centers of greatest farm trouble have been where tenancy was high or where owners were losing their equities through foreclosure.

EISENHOWER:

Well, we'll have to leave this discussion of the ideal situation as to ownership and tenancy, and rush on to some more questions. I wonder if we can get some viewpoints on whether or not continued commercialization and mechanization of farming will bring about a decline in American farm family life. Will you give us some thoughts on that, Carl?

TAYLOR:

Briefly, I should say that increasing commercialization and mechanization of farming doesn't inevitably mean lower standards of family life. It may mean fewer families on farms, since machines would do the work now done by men; that is each man would be able to turn out more products. But the families on the land should have more income per person. If they learn to spend that income for building a higher standard of family and community life, instead of in land speculation, rural civilization should advance.

But I think this question can wait for consideration. Greater mechanization of agriculture, it seems to me, depends on revival of industry so that industrial employment will take up the people released from farm work.

EISENHOWER:

But say the time does come when mechanization and enlarged farms will make it possible for fewer families to operate the food and fiber producing plant of America. Would we then say that it is good public policy to discourage the development in order to keep more families on the land?

FRYSINGER:

Well, this may not jibe with my remarks about the moral and character-building values in rural life, but I do feel that stopping mechanical progress which will lighten human labor isn't the American thing to do. I guess I can square the two statements, by setting up the proposition that we should use machines and increase efficiency all right, but that we should

(over)

see to it that the social effects of increased efficiency are good. Let the size of the family-sized farm increase, if there is good opportunity elsewhere for the people that will no longer be needed in farming. But, as Carl says, also let the fortunate families remaining on the land, and enjoying more income, put that income to socially good uses, not to more intense competition with the other farm families.

EISENHOWER:

Just one more question: Have we any choice, really, as to future patterns of rural life? Won't they finally be determined by economic forces on the march?

TAYLOR:

Well why have you had us up here discussing this thing; why did you propose it as a discussion question for the experimental rural discussion groups if there's nothing that can be done about it?

EISENHOWER:

All right, Carl. You've answered that one in the good old American fashion with another question that reduces mine to an absurdity. Of course, most people believe there's something can be done about this and about all the other questions proposed for rural discussion groups. That's why the Department has responded to requests from land grant colleges for some help in conducting these experimental discussion groups. That's also why we have been conducting some brief discussions in these Tuesday programs of the Farm and Home Hour.

With this discussion, the radio series comes to an end. However, the experimental groups are meeting out in the country, and we know from more than a thousand letters that have come to us that many people are keenly interested in organizing their neighbors into other groups. To give some assistance in conducting the sessions of such groups, the Department has issued a mimeographed leaflet, "A Brief Guide to Discussion Methods." Those of you who are interested may have a copy of this leaflet.

SALISBURY:

Thank you, Milton, and Doctor Taylor, and Miss Frysinger.

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HOME IMPROVEMENT BEGAN IN THE KITCHEN

An interview between Miss Mary F. Claytor, Home Demonstration Agent, Amherst, Virginia, and Mrs. Walter Tucker, farm woman, Sandidges, Virginia, delivered in the Home Demonstration radio program April 3, 1935, and broadcast by a network of 49 associate NBC radio stations.

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ANNOUNCER

Now we present to you Mrs. Walter Tucker, a farm homemaker of Amherst County, Virginia, who has been successful in making a convenient kitchen from the old type and Miss Mary Claytor, home demonstration agent, Amherst, Virginia. Mrs. Tucker remodeled her kitchen last year. Today Miss Claytor is calling at the Tucker home. She finds the Tucker family working on the living room, the halls and even the yard. Here they are -- Mrs. Tucker speaking.

TUCKER

Yes, Miss Claytor, when I was made project leader of the Bellevue Home Demonstration club last year I became so interested in our project that I had to try out, in my own kitchen, all the things which I was advocating.

CLAYTOR

Well, Mrs. Tucker, it is a pleasure to come back and see your kitchen truly remade. When we first talked of your work here I thought that it would be possible to make your kitchen a far better work shop and more attractive but I didn't think you could work such a fine change. You surely have combined usefulness and beauty. That color combination of _____ (insert colors) _____ is good. The extra light this window gives changes the whole room.

TUCKER

Yes, Miss Claytor, we have made a lot of changes and we like to think they are improvements, too. When I come into the kitchen in the morning to get breakfast, I am glad that my job can be done right here. Some how, the biscuits are easier to make, the eggs are easier to cook, and you may not believe me but my family says things even taste better. I believe that every member of the family is truly happier and more interested in our home because we have made a good work shop of the kitchen. The pleasure that each of us has had from this kitchen is worth more than the fifty dollars the changes cost.

CLAYTOR

Do you really find, Mrs. Tucker, that your work tires you less and that you have more energy for other things?

TUCKER

Yes, and I'll tell you why. First, my sink and water system save

(over)

me hours of work. Why have farm women done without running water all these years? Here you see I have a beautiful flow of fresh, clear water. We couldn't put in the hot water system now, but we're planning to do it next year. See how easy it is to turn to my stove and get hot water? Then you notice that Walter has built in just the type of shelves that you suggested. Without stepping out of my tracks, I can reach the dish mop, soap and all of the cleaning materials that I use at the sink. This little contraption here at the side of my shelves holds the paring knives that I use for preparing vegetables. You see I pull up my high stool and there I sit, reaching the sauce pans from this cabinet on the right hand side of my sink. I prepare the vegetables here, take two steps to the left and place them on the stove.

CLAYTOR

Well, I will have to agree, you have made a splendid job of carrying out the plans. This work center is well arranged and, as you use your kitchen, you can add other small pieces of equipment which will make it even more convenient. Now what about your preparation center? Is your cabinet really convenient? When you stand here to make bread do you find that you have everything close at hand that you need?

TUCKER

Oh yes, this really is Walter's masterpiece. He drew cabinet plans until I thought he would use up every scrap of paper in the house. Finally he drew one which would fit the space we had and satisfy my needs.

CLAYTOR

Well, what did you specify in the way of space in your home made kitchen cabinet?

TUCKER

Oh, just the same things that you have been telling us all the time. You have said that we should be able to stand in one place and reach all of the small equipment and ingredients needed for making breads, cakes and such things. Here we have it! With a few steps to the right I can reach the ice box. We can't afford an electric refrigerator so I am keeping this ice box in the pantry. I carry a tray when I get things and so I only have to make one trip to the ice box. In a jiffy my cookies are made and the family is hungrily sniffing the odor of cinnamon and brown sugar that rolls out of the oven.

CLAYTOR

Well, I'd say you really have arranged a step-saving kitchen. Each work center is complete. You have arranged your centers so that you can easily do the particular type of kitchen work required by your household. You have kept your working centers in a compact area and have left this space for a dining table. There are times when it helps to serve a meal in the kitchen and I think it is quite enjoyable when your kitchen is attractive and you can serve the meal nicely.

TUCKER

Yes, Miss Claytor, I use this table twice a day. You see, Mr. Tucker has to have his breakfast early, then the children and I have ours a little later. I find that I can serve them more comfortably right here in the kitchen. I have my lunch here too. That saves carrying things into the dining room and is less tiring. We make a big event of the evening meal at our house and it is the happiest hour of the day. I serve this meal in the dining room, use my best linens and silver and, although the service is simple, we try to make it both pleasing and restful. The tea table which we made out of the old wash stand has entirely changed our meal service.

CLAYTOR

That is fine! I knew a tea table would help a great deal, but I wasn't sure that you believed it too. It makes me happy to see your success and to know that you plan to carry this type of improvement into the other rooms of your home.

TUCKER

Yes, we do, even into the yard where our new porch is just waiting to be made into a real outdoor living room.

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HOW THE NATIONAL HOUSING ACT APPLIES TO THE RURAL HOME

A radio talk by Mr. W. G. Ward, Federal Housing Administration, Washington, D. C., delivered in the Home Demonstration Radio Program, April 3, 1935, and broadcast by a network of 49 associate NBC radio stations.

--ooOOoo--

My thanks are due the Extension Service for this opportunity to discuss the Federal Housing Program.

About one year ago many of you listening today were participating in the Rural Housing Survey. This survey effectively revealed the need for repair and modernization of the farm houses of America.

With a similar lack of maintenance evident in urban residences and business buildings, and little new construction, Congress, last June, passed the National Housing Act. Title I of this act concerns Housing Renovation and Modernization, and is applicable to both rural and urban property.

Repairs, improvements, alterations, replacements and new structures may be financed under the Federal Housing Program, up to an amount of $2000.00 and with a maximum maturity of five years.

The government does not loan the money, but encourages the use of local credit, and insures the financing agency against loss up to twenty percent of the total loans made.

Thousands of farm families have already availed themselves of the benefits of the Better Housing Program. Funds so obtained have resulted in the repair, improvement and modernization of many hundreds of homes in all sections of the country. Water systems, furnaces, electric service, bathrooms, new and remodeled kitchens, additional bedrooms, new floors and entirely new farm houses are among the purposes for which modernization credit has been advanced.

With a marked increase in total agricultural income during 1934 as compared with the preceding year, and every indication of more favorable returns ahead, farm families are again looking forward with hope. They are displaying greater interest in home improvement than has been true for a number of years. Where formerly many rural families worked with a goal of acquiring sufficient money to enable them to retire to a modern house in town, they now expect to remain on the farm and are intensely interested in making the house comfortable and attractive.

Even in the areas which have suffered several successive years of crop failure due to drought, we are getting reports of enthusiastic campaigns stimulating interest in better living conditions. Minor repairs inside and outside the house, the cleaning up of the yard and the installation of a few minor items of equipment are some of the evidences of renewed hope in the drought regions.

The improvement work done under the Federal Housing Administration plan represents only a fraction of the total work stimulated by the Better Housing Program. The best available records indicate that for every dollar of credit advance much more in cash is spent, which is proof not only of the urgent need of building repare and improvements, but of a growing confidence in improved general conditions.

(over)

For those whose income justifies the use of credit, more than twelve thousand banks and other financing agencies have contracted with the Administration to offer facilities for financing modernization and repairs, thus providing funds in all sections of the country. They are correcting a situation, now serious, but when viewed in after years will appear almost ludicrous. Banks gorged with cash, millions of structures, rural and urban, depreciating rapidly for lack of maintenance, millions of building mechanics seeking employment and supply houses ready to furnish the necessary material. A gigantic wheel which came to a stop on dead center. The Federal Housing Administration is generating the energy to overcome the inertia and give this giant sufficient momentum to resume its normal functions. I am happy to report the wheel is already beginning to turn.

Home demonstration agents are rendering splendid service in assisting the Federal Housing Administration in carrying information concerning the Better Housing Program, to the rural homes of America. I would like to mention some of the state home agents, the home management specialists, and the county home demonstration agents who are cooperating so splendidly in this work. It would be almost a roll call and time will not permit.

These workers are finding the Federal Housing Plan is adding stimulus to the long time program of raising the standard of living for farm people. It is enabling thousands of families to enjoy a more satisfying rural life. Thank you.

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BETTER-HOMES TOURS GIVE US MANY NEW IDEAS

A radio talk by Mrs. H. R. Davis, farm woman, Mortons Gap, Kentucky, read by Miss Ruth Etheridge, Home Demonstration Agent, Hopkins County, Kentucky, in the Home Demonstration Radio Program, April 3, 1935, and broadcast by a network of 49 associate NBC radio stations.

-o-o-O-o-o-

As I am a busy homemaker, it has not been my privilege to participate in many tours but as county home improvement leader in Hopkins County, I feel I can speak with conviction on the value, to the homemakers who joined in them, of the two tours held in our county. After completing the wife-saving kitchen project two years ago, we planned a tour of eight improved kitchens as a follow-up of the project. This tour was so interesting and worth while that last year, after completing two home furnishing projects, we arranged another tour, to get new ideas by seeing what the women in some of our improved homes had accomplished. In planning both tours, we tried to select homes which would show various types of improvements made by using available materials rather than by spending cash. About 250 people went on these tours.

In each home we visited, the homemaker gave an account of improvements made and the effect of these improvements on the health, happiness and well being of her family. These stories made it possible for us to picture the changes accomplished and gave us almost as many ideas as actually seeing the improvements.

Not all farm families appreciate the value of recreation in the home and make provision for play hours as well as work hours, yet in one home we visited, we found a special closet in the living room, arranged and equipped for storing recreational material. Here were games, musical instruments, books on entertainment and other playtime equipment. From the attention given this closet and its contents, I feel sure a number of homemakers carried away the idea of definite planning for recreation in the home.

We homemakers are interested in our workshops in which so many, sometimes all too many, hours are spent. A compact and well arranged kitchen that we visited used every available space for storage. Every item of kitchen equipment was kept near its place of use. Here we found a folding breakfast table which had been made of an old folding bed and enameled to harmonize with the color scheme of the rest of the kitchen. and which suggested a solution of the problem of dining space in a kitchen too small to conveniently accommodate a breakfast table. The compact, step saving arrangement of the working units suggested a possible grouping of working units in a larger kitchen.

The lunch hour on both tours, besides being a pleasant and refreshing interlude, was almost as valuable a source of ideas as the tour itself, as it gave the women an opportunity to discuss with each other, while they were still fresh in their minds, the ideas gained and ways of adapting them to their varying needs.

(over)

The living room of a rambling old brick house we visited greeted us with an atmosphere of welcome. Here a charming simplicity, the result of the removal of useless furnishing, had us making mental lists of white elephants we could afford to discard. The outstanding improvement in this room was the attention given to the group arrangement of furniture according to its use.

Finding a place for a bath room in a house built in the Saturday night era is not always easy, but the idea of converting the end of a hall into such use was demonstrated in another home. Here the homemaker also gave us a practical suggestion for transforming a plain day bed into a modern studio couch.

Flower arrangement was stressed in another home we visited. Who has not seen a bunch of lovely garden flowers literally stuffed into a mason jar and called a bouquet? Skillfully arranged bouquets of garden flowers in well placed, appropriate containers opened our eyes to beauty which is available to all of us.

In many of the homes we visited we obtained ideas on suitable background treatment, lovely color combinations, attractive window decoration and so on and on.

Tours, such as these in Hopkins County, have many values. They challenge our initiative and resourcefulness. They show the practical application of the principles we have been studying. They vitalize our efforts and create an enthusiasm for putting these new ideas into practice.

I feel that each homemaker took home with her from these tours some specific ideas, part of which were immediately adaptable while others became a part of her long time home improvement plan. All of us gained the conviction that comfort, convenience and beauty do not so much represent the expenditure of money, as the opportunity to get ideas, and the willingness to make the effort necessary for their realization. Since homemakers are fundamentally pretty much alike the world around, I am certain that a better homes tour will be as valuable to you as it was to us.

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RADIO, THE PUBLIC, AND THE DEPARTMENT OF AGRICULTURE

Remarks by M. S. Eisenhower, director of information, United States Department of Agriculture, broadcast in the Department period, 2000th broadcast, National Farm and Home Hour, Monday, April 8, 1935, by NBC and a network of 51 associated radio stations.

--ooOoo--

As Morse says, I've appeared in these broadcasts from time to time during the past seven years. That fact isn't because my voice has the bell-like tone of an Everett Mitchell's, or anything like that. Speaking in these programs is simply part of my work as the person in charge of the set-up that makes available to the public the results of research, service and regulatory work in this branch of the Government.

The Secretary has pointed out that from the beginning the Department of Agriculture has been charged with the duty of acquiring and disseminating useful information. Information obviously isn't of much benefit unless it is given to the people who need it. So we used radio as soon as it was available, just as we have used all the other standard methods of communicating ideas and instructions.

It happens that I was in the Office of the Secretary of Agriculture when this broadcast began seven years ago. I recall some of the fears and doubts that beset us then. Not that we felt the broadcast couldn't be useful in taking information to the people of the United States. We knew it could, even though but 12 stations were hooked into the network for the first Farm and Home Hour broadcast.

Rather, we feared that we weren't using the opportunity effectively. Those of you who were radio set owners then and tuned in to our broadcasts were quite kind in your comments - generally speaking, though there were some who resented the dry wording, and monotone manner of presenting some of our early talks. We have gained confidence that we can by radio convey information clearly and even interestingly. Most of our folks are more at ease now before the microphone.

We are trying to make the Department periods in these programs keep you in touch with the changing currents of action and opinion in agriculture and home management, in so far as the Government has information to give or opportunity to offer for cooperative effort. If we have in some measure succeeded in giving you useful information, we can consider the job satisfactorily done. We plan to go ahead on the same basis.

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THE FARM AND HOME HOUR - RETROSPECT AND PROSPECT

Remarks by Morse Salisbury, Chief of Radio Service, in the Department of Agriculture period, 2000th broadcast, National Farm and Home Hour, distributed Monday, April 8th, 1935, by NBC and a network of 51 associated radio stations.

--ooOoo--

Thank you, Milton.

You certainly are right about fears and misgivings concerning various and sundry matters connected with the Department periods of the National Farm and Home Hour during the early days of the program.

But as we look back at them now, our worries seem trifling. In October, 1928, it was quite embarrassing to have a home economics expert fail to show up at the studio, and be forced oneself to present a very informing but somewhat technical discussion of the vitamin content -- that was something new and different in those days -- the vitamin content of potatoes, and how to prepare them to preserve the highest vitamin value. By contrast, nowadays, having been instructed in the art and arcanum and the principles and philosophy of vitaminery and nutrition and clothing construction and fabric choice by a succession of past masters from the Bureau of Home Economics, and having been halfway admitted to the fellowship as an expert on strawberry shortcake, I should hardly turn a hair at being forced to discuss almost any topic in the range of home economics -- if I had the copy before me.

Which leads me to send you greetings from Miss Van Deman, our faithful radio reporter in homemaking matters, and from W. R. Beattie, our equally faithful recorder of currently new information on problems of the garden and orchard.

And may we pause, friends, to lay a verbal wreath to the memory of Dr. W. J. Spilman, scientist, economist, scholar, and good neighbor, who took part in three of these programs each week during the early days. But the list could lengthen into a ten-minute recital, or an even longer one. So I stop here --- but not without sending heartiest thanks for their unfailing courtesy, and best wishes, on behalf of my colleagues in the Department, to the broadcasters who operate the network and the individual stations carrying this program, and to the listeners whose appreciation -- and even reproofs -- make it such an interesting thing to work with.

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U. S. Department of Agriculture

BACK TO BETTER GRASS

A radio discussion between Milton S. Eisenhower, Director of Information, and Morse Salisbury, Chief of Radio Service, broadcast Tuesday, April 16, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 51 associated radio stations.

--oOo--

SALISBURY:

We have with us again today the Department Director of Information, Milton S. Eisenhower. He presided over the series of seven discussion meetings which we held on Tuesdays during February, March, and early April. Today he returns to the Farm and Home microphone to open a new series in which he will report to us recent developments in some lines of research which are of highest importance at present.

He will open this series of reports with a discussion of research on pasture and hay production. Throughout the late winter and early spring we have kept in touch with the nation-wide situation as to seed supply of the pasture and hay plants and as to the probable acreage to be sown. The intentions to plant report issued in March bore out the predictions of Dean Cox and others that acreages of the hay and pasture crops for which seed is in good supply would go to record figures. Soybean and sorghum acreages, if growers carry out their intentions reported in March, will rise to the highest point in American farm history. About all the available seed of plants for emergency hay and pasture crops will be used up. There will be a great deal of work put in on reviving pastures affected by the drought last year, and putting in new pastures, though seed is scarce for some of the plants usually included in pasture mixtures.

A good part of this activity in pasture and forage seeding and management springs from the adjustment programs. Application in the future of results rising from research in this field will partly depend upon the future trend of adjustment programs.

So, as a starter to your report, Milton, I wonder if you'd sketch a picture of this relationship between adjustment of the acreage put to export crops and increase of the acreage put to pasture and hay.

EISENHOWER:

Well, Morse, I'd say one link between the two is the need for conservation. Farmers are putting pasture and hay on the acres taken out of the export crops because pasture and hay plants protect the soil from erosion, usually enrich the land, and require less human labor per acre.

(over)

SALISBURY:

In other words, growers of the export crops are conserving their own emergy and the fertility of the land, not wasting both resources by putting their acres to pasture and hay instead of to crops which are no longer wanted abroad.

EISENHOWER:

That's the idea. Of course, this fundamental aim of the adjustment program is obscured in the thinking of some city people at present by the fact that the drought came in last year and knocked production schedules galley west, and caused a cut in production several times as large as the cut contemplated by the adjustment program. However, the land which produced the surplus of export crops is still there; although the fertility of some of it is gravely threatened by wind and water erosion. The foreign market is even smaller than it was when farmers started the adjustment program; and it doesn't promise to get bigger unless and until we undertake to import goods to pay for things we want to export. With the land still there, and the foreign market smaller, a year of normal growing weather could send supplies of the export crops way out of line with demand unless farmers keep acreage under control. So the need remains of getting the land not wanted for export production into soil-saving cover.

SALISBURY:

True enough, nationally, but there are numerous individual problems of adjustment that everyone can think of. And I suppose that's why sentiment is springing up in favor of regional adjustment plans, looking at each farm from the standpoint of best organization for business success and at the same time for balancing national production, and rewarding each individual for making the changes in his system which will tend to bring his farm into such an organization.

I have no doubt that if such a plan can be worked out, it will. If and when it is, the demand will be keener than ever for information concerning establishment and management of pasture and hay acreage and it is keen enough now. So we'll turn to your report, Milton, on recent developments in pasture and hay research.

EISENHOWER:

I suppose one thing in which most listeners would be interested is a prescription for renovating pastures affected by the drought last year or run down because of years of neglect and overgrazing. The overgrazing and drought in combination were disastrous to thousands of acres of pasture. I'm sorry that I can't undertake in this radio summary to give directions for renovating them. The methods to follow vary in different sections of the country. Nearly all the State experiment stations, Doctor Jardine tells me, have issued to extension workers the directions that apply within their States.

SALISBURY:

I agree that you'd best not try to give directions for applying results of past research. Those directions, as you say, can be had from the county agents, interpreted so that they apply directly to the farms in each county. What we should like to have from you is a report on some of the basic problems research men are attacking and preliminary results they are getting.

EISENHOWER:

Very well, Morse.

I can't give a complete survey of current work going forward in the State experiment stations. There was a great deal of activity last year, I know. There will continue to be a great deal this year. The State stations are going especially strong, I understand, on the work to determine answers to practical management questions - when to cut hay plants so that the hay will have the maximum feeding value; how to control weeds in pasture and hay stands; fertilization practices that give the highest yield of the most nutritious grazing or hay over the longest period; rotation grazing and so on and so on.

The Department men are working in collaboration with the State experiment station men upon regional problems and are also engaged in various lines of fundamental research. They are working to accumulate seed of superior strains of pasture and hay plants, and they are fighting the diseases of forage plants, by trying to develop strains that resist the disease, or by finding appropriate cultural methods.

SALISBURY:

Suppose you take the projects of those fundamental types and report on them. This fighting diseases of forage plants, for instance.

EISENHOWER:

Well, there's alfalfa wilt. It's especially bad out where you and I come from, Morse - the west Corn Belt and East plains, though it's known to exist from Pennsylvania on the east to California on the west. I think you had H. L. Westover of the forage crops office on the air four years ago when he came back from Turkestan with strains of alfalfa that resisted the disease.

SALISBURY:

Yes, I remember his talk, telling what difficulties he and the others went through in their search for wilt-resistant alfalfas.

(over)

EISENHOWER:

Well, they've been working in the slow but sure way of plant scientists with those stocks Westover brought back. Out at Lincoln, Nebraska, they have worked with five generations of these alfalfas. They have indications now that they can produce an alfalfa that will be wilt resistant and also winter-hardy for the region. The progress is slow but encouraging. And listen, you listeners - don't you write in and say I said the Department has seed of a wilt-resistant alfalfa. I am not saying anything of the sort. I am saying that progress is being made toward that goal.

SALISBURY:

All right, Milton, I hope everyone has that straight. Anything else along the line of fighting diseases of hay and forage plants?

EISENHOWER:

I would like to report to southerners one thing that Doctor Pieters told me yesterday. He said the Department and the Georgia experiment station were establishing a cooperative research project to find the cause of the wilt disease of Austrian winter peas. This disease has discouraged a lot of farmers in the Southeast from using this otherwise excellent winter cover crop. It's highly important that the scientists find a way of fighting the disease at low cost. They'll probably do it by developing a strain that resists the disease. That's the aim of their project, anyway.

SALISBURY:

Anything on cultural methods of handling hay crops?

EISENHOWER:

Lots of it from the State stations, as I said. The Department has not done so much in this field, because results can't apply over whole regions, and because the States are taking excellent care of the situation. Doctor Pieters did tell me that the Department work with the Mississippi experiment station to see if alfalfa can't be grown on the black prairies and in the Delta region, is almost finished. The answer at one experiment station seemed to be application of phosphates; at another surface drainage. But the scientists don't want to give out those answers as open-and-shut until they have tested the results under farm conditions in cooperation with several farm operators.

SALISBURY:

Now about improved strains of hay plants, or new kinds of plants for haymaking introduced from abroad?

EISENHOWER:

So far as I know, no new introductions from other lands, except for lespedeza sericea, already established in the South as a good hay plant. Farmers are now testing its regional adaptation. There is an intensive search going on within this country to locate improved strains of hay plants. Doctor Hallowell already has located some strains of red clover that seem to be very promising. But they have got to be increased and tested out. So, again, please don't write to the Department and ask for those improved strains of red clover. We don't have 'em yet.

Department and State scientists also are looking for improved strains of timothy. They want a hay type of timothy that will mature earlier in the southern part of the timothy region. They already have developed one, and it's only a matter of time until there is enough seed for distribution. They also are searching for a suitable variety of timothy for pastures - one that will retain green leaves throughout the season and will endure grazing.

SALISBURY:

Now you're getting over to the pasture side, Milton. Suppose you wind up with a brief description of the fundamental problems in pasture management and how farmers and scientists are dealing with them.

EISENHOWER:

Well, there is really just one fundamental problem in pasture management, I suppose. That is to apply the existing knowledge about how to make and maintain good pastures; to put the pastures on good land; to fertilize them, seed them, graze them, control the weeds, and otherwise handle them according to best existing knowledge. If that were done, even though we didn't have another spear of new knowledge, the usefulness of pastures might be doubled.

SALISBURY:

Guess I misspoke myself, Milton. What I meant was not management, but research. As you say, the fundamental problem in management is to apply existing knowledge. But what are the fundamental items of <u>new</u> knowledge the scientists think are needed?

EISENHOWER:

There are really two sets of fundamental pasture research problems, so Harry Vinall tells me. The problem for the regions of lighter rainfall--the range States--is to find plants which will endure long periods of drought. That's no simple matter. Vinall told me about a report from a man in the drought area who found that over half the buffalo grass on widely scattered plots was killed out in the drought of last year.

(over)

SALISBURY:

But still buffalo grass and other native grasses would stand up better than any introduced or tame grass yet found.

EISENHOWER:

Certainly. So there is an organized effort to collect large supplies of seed of the native grasses. The soil erosion service has been collecting seed by the ton, wherever it could be found, for use in control of wind erosion. They prefer species which will provide grazing or hay, because the seed will be sown on farm land, and the owners must eventually have some income -- other than benefit payments -- from these acres.

SALISBURY:

Of course, but just one question: Does buffalo grass bear seed?

EISENHOWER:

Yes it does, but so close to the ground that it's hard to harvest. Other valuable native grasses like the big and little blue-stems have poor seed habits. The seed is produced only in small quantities and it germinates very poorly. Efforts will be made to develop better seed strains of such grasses. Preliminary work of this kind indicates that much can be accomplished in this way. A study of the reasons why so many of these valuable native grasses do not produce viable seed in commercial quantities may reveal ways of overcoming this weakness. Growing these grasses under different environmental conditions may result in the production of good seed crops as it has in the case of bermuda grass in Arizona and southern California.

One other thing about the pasture problem in the range area: Besides trying out the native grasses, and finding methods of getting them established, the scientists are working with various introduced grasses, testing them out. You remember Westover and Charley Enlow went to Asia last year on a hunt for grasses that would grow under arid conditions. The plants they brought back with them must be tested out over periods of several years. Maybe something useful will be found in their importations. But there is nothing positive yet to announce from all this testing.

SALISBURY:

So much for the arid region. What about pasture problems in the humid regions?

EISENHOWER:

As Vinall sees it, the main research problem in the humid regions is to learn more about the life history and the reactions to different climatic and soil conditions of the common pasture plants. The men in the Forage Crops office hope to start a big project to learn those facts at the beginning of the next fiscal year.

Their thought is that once we learn the basic facts about these plants, we can make up pasture combinations which will give a longer grazing season, more growth, and more nutritious pasturage.

That is the big basic project in pasture research for the humid regions. Of course, work will go ahead on the effect of fertilizers, weed control, rotation grazing, and so on.

SALISBURY:

Thanks very much, Milton.

Mr. Milton S. Eisenhower, Director of Information for the Department, has given us this review of recent and contemplated research in pasture and hay production. Next Tuesday he will review some of the recent results of cotton research and tell what problems of cotton production and marketing the scientists plan to attack in the near future.

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WHAT EXTENSION WORKERS ARE DOING

A radio talk by H. W. Gilbertson, U. S. Department of Agriculture, delivered in the April 17, 1935, Land-Grant College radio hour and broadcast by a network of 49 associate NBC radio stations.

--ooOoo--

The farm people of this country have never faced so many serious and complex problems. I believe you will also agree that there has never been a time when governmental agencies have made such tremendous efforts to help farmers solve their own problems. Our extension workers, employed cooperatively by the Federal, State and county governments, are taking a leading part in the war against the farm depression. That is why they have so much responsibility. Those of you who are in the habit of calling at the offices of county extension agents for information realize that the variety and amount of work which the Extension Service is asked to do are constantly increasing.

Through educational meetings, news articles, letters and farm visits, extension workers are helping rural people to develop and accept the solutions offered for our major national farm and home problems. Among the problems discussed at recent meetings are production adjustment, soil erosion control, farm credit, rural rehabilitation, the reduction of costs of production and of living, and the prevention of economic losses through insect pests, plant and animal diseases.

There is now a county agricultural agent in each of more than 2800 counties; nearly half of these counties have home demonstration agents and 175 counties have 4-H club agents. 350 counties have assistant county agents who also help to carry 4-H club work. More than 1100 extension specialists located at the State agricultural colleges are helping to furnish the latest technical information, and to conduct county local leader conferences and other meetings. Nearly 200 men and women leaders in each county are helping to complete plans and to arrange for this year's extension and agricultural adjustment work within their own communities. The county extension agent supervisors in several States are holding State and district conferences to train the county extension agents and their office assistants to give the greatest amount of help to rural people at the lowest possible cost.

The home economics extension specialists and home demonstration agents are furnishing information to rural homemakers about improved methods of feeding and clothing the family, maintaining the family health and providing desirable home conveniences. They are also helping farm women to plan for more economical use of money, energy and time, including plans forthis year's family food budget and family garden. Rural women use extension information to become more efficient homemakers, more hospitable neighbors, and better citizens.

(over)

The county extension agents are working with local leaders in completing this year's enrollment of more than 900,000 farm boys and girls in 4-H clubs. 4-H club work gives rural boys and girls a balanced program of instruction in agriculture, home economics, organization and recreation.

Several Federal agencies are using the help of county extension agents to place information before farm people. Assistance is being given to the Farm Credit Administration and the Relief Administration, for example, in keeping farm people informed about facilities available for obtaining farm credit and debt adjustment. The extension agents are working shoulder to shoulder with the rural rehabilitation workers of the Relief Administration in furnishing aid and information to more than 600,000 farm families.

Almost a million farm families are using extension information to help them produce a larger part of their family's food supply and nearly as many non-farm families are being assisted this spring with their home garden and home poultry problems.

County agricultural agents are still giving considerable time to furnishing information that will speed up the job of distributing hundreds of thousands of tons of hay and feed from surplus producing States to several hundred drought stricken counties in which very little feed was produced last year. They are also cooperating with other Federal and commercial agencies in the distribution of more than nineteen million bushels of seed grain in drought counties.

The county agricultural agents are working with thousands of local committeemen in handling compliance and other work relating to nearly four million agricultural adjustment contracts. Corn-hog contracts are being renewed with nearly a million farmers and plans are being completed for a referendum on the wheat acreage adjustment program.

Farmers are receiving information about spraying their fruit trees and treating their seed potatoes and seed grain in order to reduce the quantity of wormy and disease injured crops, thereby greatly increasing the amount of wholesome food available for city consumers. Telephone calls and office requests are also being answered from both townspeople and farmers regarding the most successful methods of seeding lawns and the planting of shrubs and flowers.

Extension workers are doing their part toward developing rural leadership, more profitable farming and better rural living conditions.

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WHAT THE TOBACCO PROGRAM HAS MEANT TO CONNECTICUT FARMERS

A radio talk by W. S. Middaugh, Assistant Farm Management Specialist, Storrs, Connecticut, delivered in the Land-Grant College Radio Hour, April 17, 1935, and broadcast by a network of 49 associate NBC radio stations.

--ooOoo--

Connecticut tobacco farmers gained two million dollars in cash income, made tremendous savings in cash expenditures, reduced the surplus which has been a millstone about their necks for the past four years, and generally saved tobacco farms in this area from wholesale foreclosures--all this as a result of participation in the Agricultural Adjustment Cigar Tobacco Program. Further, this increase in income, reduction of expenditures, and reduction of surplus were not made at the expense of the consumer. The consumer has not paid higher prices for cigars. All benefit payments and administrative expenses have been paid from funds derived from the processing tax on tobacco used by manufacturers. Since the tax was not passed on to the consumer and since the farm price of tobacco has increased about fifty percent, the manufacturers must have paid the tax out of their margin. This was a just tax on the manufacturers since their profits are still high enough so that some of them paid an extra dividend this past year.

The Adjustment Program for cigar tobacco was announced in 1933 after planting had started. Many of the growers had already made commitments for fertilizer, for renting land, and for labor. Nevertheless, 37 percent of the Connecticut tobacco farmers signed contracts in 1933. On the basis of the success of the 1933 program, 95 percent of the tobacco farmers signed voluntary contracts in 1934.

The farmers recognized that the stored surplus would have to be used before the prices would return to a satisfactory level. The stocks of cigar tobacco, a non-perishable, luxury product, had increased from 1929 to 1932. If every acre of land had been used for other purposes and no tobacco produced in 1933, there still would have been some surplus. Connecticut Broadleaf and Havana Seed tobacco farmers reduced their normal acreage by 47 percent in 1933 and 70 percent in 1934. By growing less than half of the normal acreage in 1935 the total supply of Connecticut tobacco will be reduced to a normal.

Three years of low income, 1931-1933, preceded by two years of excessive loss by hail had placed the Connecticut tobacco farmers in an extremely precarious position. The Tobacco Program has not restored the income to its former level, but it has raised it 50 percent above that of the previous two years. The Program has provided the cooperative machinery by which the farmers could voluntarily adjust farming operations so that the surplus would disappear in an orderly manner. This cooperative effort is one of the most important phases of the Tobacco Control Program. The tobacco adjustment machinery has not been imposed on the farmers, but rather has been accepted voluntarily by them as the most effective and least expensive method of making adjustments which are obviously essential if the tobacco industry is to be self-supporting.

(over)

The 50 percent increase in tobacco farmers' income, has made it possible for them to settle some back debts, pay taxes which had been pyramiding, and avoid adding to the public welfare list. The tobacco farmers are not out of debt, few of them have been able to make almost essential repairs or to renew equipment, but they have started on the road which will lead to efficient adjustment and sound financial standing.

Part of the tobacco land and buildings will not be needed to produce tobacco for several years, if ever. The owners of this land will use it for potatoes, vegetables, dairying, etc. Thousands of idle acres will gradually be put to some useful purpose that will increase the income of the owners.

The tobacco program has furnished the farmers with the machinery for effecting temporary adjustments, such as the reduction of the surplus. The two million dollar gain in cash income and the big saving in cash expenditures have given the farmers renewed courage to make the adjustments that are necessary for the prosperity of the Connecticut Valley tobacco region. The farmers feel justified in accepting benefit payments, because the funds came from the excess profits of the manufacturers and not from the consumers. If the tax is continued after the supplies have been reduced to normal, the tax would undoubtedly be paid by the farmers themselves.

It is probably evident that because of the limited time, only a very brief and incomplete picture could be drawn here of the serious plight of tobacco farmers in the past half dozen years, and equally little could be said of the purposes and operation of the Tobacco Control Program which 95 percent of them believe is the most practicable means of saving the situation.

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MAY 6 1935

KEEPING FARM MACHINERY IN REPAIR

A radio talk by Stewart Leaming, County Agricultural Agent, Porter County, Indiana, delivered in the Land-Grant College radio program, April 17, 1935, and broadcast by a network of 49 associate NBC radio stations.

--ooOoo--

Porter county is a highly developed agricultural community and many of the farms have heavy investments in up-to-date farm machinery. It is not strange that many of our farmers have given attention to the care of their machinery in order that they may keep down their operating costs.

Recently I visited with the Smoke Brothers, who are rated among Porter county's successful farmers. They take special pride in their full line of farm machinery. Along with more modern pieces of equipment, I saw a mower 39 years old, a binder 35 years old, a manure spreader, a hay rake and a hay loader each 29 years old. Each of these implements was in good condition and still in service.

"How do you keep your machinery in such good working order while others find it necessary to replace their equipment after a few years of service?" I asked.

"We protect our machinery from the weather when it is not in use," was the prompt reply. They went on to say that they had observed that rust and decay are the great enemies of farm machinery and that they have conquered these enemies by erecting rather simple and inexpensive sheds for their tools. They make it a rule to get each machine under roof just as soon as they are through using it and they find that this rule pays big dividends.

The next rule that they gave for keeping their machinery in repair is frequent and regular oiling of all bearings. They have found that all moving parts must be protected by oil if the usefulness of the machine is to be preserved and that neglect of the bearings may ruin a machine in a short time. They also make it a practice to go over the machine each day that it is in operation and keep the nuts tight and the working parts in alignment and working smoothly. They have found that the old adage "an ounce of prevention is worth a pound of cure" is especially true when it comes to keeping machinery in repair.

From watching them in the field, I have observed that these brothers have developed a certain skill in their farming operations which is partly responsible for the low machinery repair costs on the farm. They take a little extra care in driving through gates and lanes and in turning at the ends of the fields to avoid striking obstacles and thus twisting the machinery. They avoid, as much as possible, sudden starts and stops which throw an extra strain on machines and teams. They have gone to some trouble to remove stumps and rocks which might interfere with their operations. They expect a machine to perform the services for which it is intended but do not expect it to work

(over)

beyond its capacity, as this shortens its life. In brief, their skill has enabled them to do a good job of farming with the least strain on themselves, their teams and their implements.

The Smoke Brothers make a practice of buying, so far as possible, only machines for which repairs can be obtained locally or within a few hours time. They do not place too much reliance in an emergency, on machines for which repairs are not available, as they have discovered that if a machine is broken down and a crop is waiting to be harvested, any delay in making repairs may prove expensive.

At the end of the season, they make an inspection of each machine and order any repairs that may be needed, and make the replacements and adjustments during the slack season before the machine will be needed again.

These men keep on hand a supply of stock repairs so that replacements can be made quickly. During the winter months they saw out an extra supply of wagon and machine tongues, sills, reaches and materials for eveners. They place this lumber in the dry where it will season and be ready when it is needed. They also keep on hand, in home made cabinets, extra supplies of machine bolts, cotter pins, washers, shims, drive chain links and rivets, and thus save trips to town and speed up repair jobs.

They consider their simple machine shop one of the important buildings on the farm. It is equipped with a forge, an anvil, a drill, tool grinder, a stock with dies, and sets of hammers, wrenches, punches and chisels. They also have a few special tools which enable them to care for nearly all of the repair jobs that they encounter, except acetelyne welding.

The Smoke Brothers are typical of a large and growing class of men who keep down machinery repair costs through careful operation and a knowledge of repair methods.

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THE GREAT PLAINS SHELTERBELT

Interview by M. S. Eisenhower, Director of Information, with F. A. Silcox, Chief of the Forest Service, in the Department of Agriculture period of the National Farm and Home Hour, broadcast by a network of 50 associate NBC stations Tuesday, April 30, 1935.

--ooOoo--

SALISBURY:

Tuesday brings us another of M. S. Eisenhower's reports on the research work of the Department of Agriculture. Mr. Eisenhower has with him today Mr. F. A. Silcox, Chief of the Forest Service. They have a bunch of weighty-looking documents with them, and they seem anxious to get to work. So without further preliminaries I'll turn the microphone over to Mr. Eisenhower.

EISENHOWER:

Thanks, Morse, and hello everyone.

Today Mr. Silcox and I want to tell you a little about the forest shelterbelt in the Great Plains. Eventually it will reach from the Canadian border, down through the Dakotas, Nebraska, Kansas, Oklahoma, and into Texas.

Now, the Department of Agriculture does not undertake such a major project without knowing in advance just how the work should be done. Back of the actual selection of location, kinds of trees for planting, and so on must be a great deal of careful, painstaking research. And so Mr. Silcox and I want to take you behind the scenes today to give you a brief glimpse of the research studies which were necessary before the Government could actually begin field work on the shelterbelt.

Mr. Silcox, I see you have a bundle of maps there. I suppose those are the working plans for the shelterbelt.

SILCOX:

Well, yes and no. These maps are the result of the research you've just mentioned. They show, step by step, the facts we gathered to determine whether the shelterbelt plan is practical and, if so, just how and where we should go about it.

EISENHOWER:

That's exactly the story we want to hear. But, first, I wonder if everybody knows just what a shelterbelt is?

(over)

SILCOX:

Oh, I think so - by this time. A shelterbelt is simply rows of trees to protect homes, and farmsteads, and crops from winds and storms.

EISENHOWER:

From dust storms, too, I suppose?

SILCOX:

Yes, to a certain extent. Probably folks in the present dust storm zone who have trees that protect their houses find less dust sifting through the key-holes and cracks around the doors and windows. I'm speaking now, of course, about shelterbelts around individual farms. This proposed, big shelterbelt simply applies on a larger scale what farmers have done individually farm by farm.

EISENHOWER:

So shelterbelts - and trees, in general - aren't something new and untried in the Plains country?

SILCOX:

Most certainly not. We know that trees have been growing in the Plains - at least ever since they were opened up by the first white men.

EISENHOWER:

As I recall the stories in our histories and historical novels, the early travellers in the Plains country were always driving their covered wagons into groves of cottonwoods alongside a stream for the night.

SILCOX:

And gathering wood to build a fire.

EISENHOWER:

Yes, that always was part of the story, too.

SILCOX:

The early settlers did find stands of various kinds of trees along the stream bottoms. But, when they got away from the streams - out on the prairie - they found wide unbroken stretches of grassland. The icy blasts of winter and the blistering, dry, hot winds of summer had a clear sweep. So the very first homesteaders tried to protect their homes with trees.

EISENHOWER:

The Government encouraged tree planting, too, didn't it?

SILCOX:

Yes, it did. You may remember the Timber Culture Act of 1873 which granted a homesteader a patent to 160 acres of land if he agreed to plant one-fourth of the land to trees. As a result, Plains farmers planted thousands of shelterbelts. The big wave of planting came about the '90's, and despite the fact that poor sites and wrong tree species were selected in those days, you can still find many of those early shelterbelts scattered here and there in the Plains States.

EISENHOWER:

So, in this present program, you don't have to start from scratch. You have a good beginning on which to build.

SILCOX:

All the Federal Government is trying to do is to carry forward in a systematic way the work that has been done for years - and is still being done - by States, counties, municipalities, and individuals.

EISENHOWER:

I suppose people in other countries with conditions like those in the Plains States use shelterbelts too?

SILCOX:

Yes, as a matter of fact this country is something of a piker so far as shelterbelts are concerned. Several European countries have maintained tree belts for years, and they have been very successful. Russia, especially, has done some noteworthy work in growing shelterbelts in regions similar to our Great Plains. And now Russia has a plan for planting five million miles of shelterbelts! Our own thousand-mile project doesn't look so big in comparison.

EISENHOWER:

But, in spite of all of the past experience in this country and abroad, I find that some folks wonder - and quite sincerely - whether the trees planted in this program actually will live, and whether the whole plan is practical.

SILCOX:

Well, we raised exactly the same question with ourselves when the Great Plains shelterbelt was first suggested. Since last September, we have carried on an exhaustive investigation into the possibilities of such a shelterbelt. We had the cooperation of other bureaus of the Department and State agricultural colleges. We have studied the matter from every angle - soils, ground, water levels, wind velocity, rainfall, and so on.

(over)

EISENHOWER:

And you have the results of those investigations on these maps?

SILCOX:

Just the highlights, of course.

EISENHOWER:

I notice that each one of the maps covers the same territory. On the map, it looks like a rectangle standing up on one end. East and west, it extends from just beyond the Mississippi River, westward to the Rocky Mountains.

SILCOX:

Yes, that's the general territory we studied - a strip six or seven hundred miles wide from the Canadian border to Mexico.

EISENHOWER:

And you've drawn a narrower strip down through the center of each map to show where you propose to plant the shelterbelt.

SILCOX:

Yes, that's a strip approximately a hundred miles wide, about half way between the Mississippi River and the Rocky Mountains.

EISENHOWER:

Now, let's see. You have a colored map here showing the kinds of soil - and another showing moisture conditions - and another with a lot of little windmills on it showing the direction and velocity of the wind, - another, natural vegetation - still another the kind of trees that do best in each region - and this final one -

SILCOX:

That one shows the value of land in and near the shelterbelt region.

EISENHOWER:

Oh yes. Well, suppose you take one map at a time and explain its meaning.

SILCOX:

First of all, we wanted a picture of moisture conditions. If they get enough moisture, trees will grow almost anywhere - even on a sand pile or a rocky cliff. So, on this first map we show moisture conditions.

EISENHOWER:

That is, the amount of rain, snow, and so on.

SILCOX:

Not only the amount, but also its seasonal distribution and the rate of evaporation. Fifteen inches of precipitation might be enough to grow trees in the northern part of the Belt, while in the South, 22 inches might be required to grow the same kind of tree. Taking all of those things into account, we drew a line which shows the western limit for successful tree growing, so far as moisture is concerned. The country to the east has enough moisture to grow trees on the majority of soils.

EISENHOWER:

You say on the majority of soils. I suppose even in the eastern part of the Plains you can't grow trees on some of the poorer land.

SILCOX:

That's right.

EISENHOWER:

Well, now, I think I get the hang of this second map, - this brightly colored map of green, yellow, and red. It marks off the various kinds of soils. Even in this central strip where moisture conditions are all right, you indicate the suitability of the soil for trees. For instance, the colorings and markings on the map say to the forester, "Plant here with safety," or "Plant there with the greatest of care," or "Don't plant in this place at all."

SILCOX:

That's the general idea. Here's an example. Notice the yellow patch with the black dots in the eastern part of Nebraska. A good part of that section is light, sandy soil. Moisture soaks into the ground very readily. That section is suitable for trees. But when you get into some of the heavy clay soils, the moisture sinks only a few inches into the ground; and it evaporates very quickly. Roots have trouble getting into the ground. The soils range all the way from good to bad. The maps prepared by the soils specialists of the Bureau of Chemistry and Soils give us a good picture of all the soils factors we must take into account.

EISENHOWER:

So the first two maps give the exact facts about moisture conditions and soils. What was the next point you considered - what's on the next map?

(over)

SILCOX:

Wind movements. In cooperation with specialists of the Weather Bureau, we studied all the weather records thoroughly - to get a picture of the winter, summer, and year-round winds - the velocity, direction, and length of time the wind blew from a particular direction, and so on.

EISENHOWER:

I can see why you might want to know the direction of the prevailing winds. But why the rest of that information?

SILCOX:

To know the prevailing winds, alone, isn't enough. We also have to know the direction the damaging winds come from. Is the damage done by icy winter gales from the Northwest, or hot, dry summer winds from the Southwest? You have to take those questions into account in arranging the plantings.

EISENHOWER:

And what did the studies show?

SILCOX:

That the damaging winds are generally from the South and Southwest to the North and Northeast, or from the Northwest to the Southeast.

EISENHOWER:

And of course you'll plant the strips of trees at right angles to these winds.

SILCOX:

That's right. Except that it will be impractical in many cases to plant diagonal strips. This means that some strips will run north and south, others east and west. The south winds become increasingly important as we go south from the Dakotas. Therefore, the east-west strips will be more common in the southern part of the region, and the north and south strips more common in the Dakotas.

EISENHOWER:

Well, then, the maps you've explained give a pretty good idea of where to plant the trees.

SILCOX:

We still have one more map giving results of an important study on that problem. And that's the natural vegetation map. It charts three pretty distinct belts, or regions, between the Mississippi River and the Rocky Mountains. Notice this forest belt extending just west of the Mississippi. And then the forests thin out and fade into the second belt - the tall grass prairie region. And as you move still farther west toward the Rockies, you hit the third main belt - the short grass region of the Plains. The rainfall decreases as you move westward.

EISENHOWER:

I notice that the proposed shelterbelt zone falls about on the dividing line between the tall-grass prairie region and the short-grass region.

SILCOX:

Yes, the shelterbelt takes in a little of both regions.

EISENHOWER:

Well, you studied the natural vegetation. You have a picture of the native trees, shrubs, and grasses, and so have an important indication as to the type of trees you might grow successfully. But, what about the trees planted in the past - what about those farm windbreaks you told me about a moment ago? How are they getting along - especially during the drought period?

SILCOX:

We studied the success of previous shelterbelt plantings in this region very thoroughly. A great many have failed. But hundreds of others are still growing in spite of the drought. Many of the failures were the result of poor soil, wrong varieties of trees, and improper planting methods. Using what we have learned about successful shelterbelt methods, I see no reason why we can't expect reasonable success with this shelterbelt project. Of course, if we accepted the drought of the past few years as a permanent change in climate, the prospects wouldn't be bright. But, judging from weather records going back for many decades, we can expect a return of a cycle of wet years on the Plains. We can make shelterbelt plantings that will withstand recurring droughts, such as the present one. We will, of course, use terrace and impounding devices, wherever feasible, to conserve the moisture. We have varieties of trees suited to each section indicated on this next map. You'll notice that in some places elms or cottonwoods make the best shelterbelt trees; in others, cedars, ash, locust, and so on.

EISENHOWER:

Well, some folks, even after they are convinced the project is physically possible, still point to the rather large investment. They wonder if the land is worth the cost of shelterbelt protection.

(over)

SILCOX:

Yes, it is. We've checked carefully into the Farm Credit Administration's maps showing farm values. And we have studied the report of the program planning division of the AAA to the National Resources Board to find the lands classed as submarginal. Good agricultural land predominates in the area selected for the shelterbelt. We have that information all mapped out here, too.

EISENHOWER:

So, then, as you put all of these maps together you've just about got the picture of where a shelterbelt can be grown, and where the value of the land justifies the investment.

SILCOX:

That was the aim back of all our investigations.

EISENHOWER:

Now, I want to ask just one more question.

SILCOX:

All right.

EISENHOWER:

Just what are the specific advantages of a shelterbelt, anyhow? What will it do, and what won't it do? From some of the fanciful reports I have heard, I think you had better bear down on just what the shelterbelt won't do.

SILCOX:

Well, the trees will improve physical conditions for living in the neighborhood of the shelterbelt. But they will not change the general climate of the entire region as some folks have said. Climate is a result of forces beyond our control. Shelterbelts won't stop droughts, but they will lessen their effect. Shelterbelts won't increase rainfall, but they will help save what does fall. They cut down the velocity of the wind and so check evaporation. In Europe, in bad years, crops not protected by shelterbelts have been almost completely lost; but where protected by shelterbelts almost normal crops have been grown. Finally, shelterbelts beautify the landscape, serve as a haven for game and birds, and help make the locality a better place in which to live.

EISENHOWER:

Thank you very much, Mr. Silcox; you've given us a fine summary of the detailed investigations which have been made to take the guess-work out of the Great Plains shelterbelt project.

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THE DEPARTMENT GENETICS PROGRAM

A radio interview between M. S. Eisenhower, Director of Information, and O. E. Reed, Chief of the Bureau of Dairy Industry, in the Department of Agriculture period, National Farm and Home Hour, Tuesday, May 7, 1935.

--ooOoo--

SALISBURY:

From time to time, in these Farm and Home Hour periods, Miss Van Deman, Mr. Beattie, and other Department people, have served up a delicious pudding or shortcake, made from a luscious new strawberry or blueberry developed by Department scientists. Other speakers have told you about other outstanding accomplishments in plant and animal breeding. Today, in his regular Tuesday report on research work of the Department, Mr. M. S. Eisenhower, Director of Information, will tell you about an important new development in the breeding, or genetics, work of the Department. Mr. Eisenhower --

EISENHOWER:

Thanks, Morse -- and hello everyone.

I'm sorry I've missed out on those strawberry and blueberry parties. A dish of delicious berries should help me appreciate the contributions to agriculture of the experts in genetics. As Morse says, that's what I want to talk to you about today.

A year or so ago, Secretary Wallace appointed a Department committee on genetics.

That may appear to some as unimportant, or even rather odd. Why should there be a genetics committee, and what will it do?

Well, probably no single thing in the research program of the Department of Agriculture is more important than what we have come to call the search for "superior germ plasm." This consists of the discovery and development of superior seed and animal blood lines through applications of the art of breeding and the principles of genetics.

Every step to find and make use of plant and animal strains having superior germ plasm is a step toward more efficient production.

By using three chief principles -- introduction, selection, and hybridization -- plant breeders have developed hundreds of new varieties which give high yields, resist diseases and insects, are of high quality, and superior in many ways to the ordinary varieties. For example, farmers plant each year more than 40 million acres of new, superior varieties of wheat, oats, and barley.

(over)

Considerable progress is being made in the field of animal breeding, too. So the science of genetics is important -- and personally I believe that the formation of a genetics committee in the Department will prove to be an important milestone in agricultural history. Secretary Wallace's committee is headed by Mr. O. E. Reed, Chief of the Bureau of Dairy Industry, who is here in the studio with me.

As I understand your work, Mr. Reed, the committee is searching the world over for the best existing strains of plant and animal life.

REED:

Yes, that's the general idea. After we find these superior strains, we expect to report what and where they are. This report will be a kind of "Who's Who" of plants and animals; it will be available to breeders, farmers, and others. The "Who's Who" will show past accomplishments in finding and developing superior strains, and will indicate further possibilities for plant and animal improvement. As a final step in the program, our committee will try to develop better ways to put improved strains of plants and animals in the hands of plant and animal breeders throughout the country.

EISENHOWER:

Before we go into the details, and before you give us some examples of results of scientific breeding methods, I want to go back just a bit.

As I understand it, a really scientific approach to plant and animal breeding is a fairly recent development -- that is, recent in the historical sense?

REED:

Yes, Mendel laid the foundation in 1865 for all of our present breeding work.

EISENHOWER:

As I recall, Mendel was an Austrian.

REED:

An Austrian monk.

EISENHOWER:

And he worked with peas.

REED:

He used garden peas in his breeding work because they are especially suitable for self-fertilization and for artificial breeding.

EISENHOWER:

Can you tell us in a few words what he found out?

REED:

Well, that's a big order. Briefly, he worked out the natural laws governing the results of crosses between individual plants or animals with contrasting characteristics.

EISENHOWER:

That is, with contrasting color, size, and so on?

REED:

Yes. Suppose you have a short, red sweet pea in your garden. You say, "I like that pea but the stem's too short." The plant breeder says, "I'll cross the short red pea with a white pea with a long stem. I can give you a tall pea with the red color you like."

EISENHOWER:

And in crossing the red and white peas, you still keep the red color?

REED:

That's the general idea. Mendel found you could cross one pea with another to get the height, or color, or kind of leaf, or any other characteristic of the second pea. You can breed for any single characteristic, or combination of characteristics, you want.

EISENHOWER:

If you follow the right system.

REED:

Yes -- and Mendel worked out the mathematical rule to follow. Nobody paid any attention to his work for several years. But since about 1900, it has come into widespread use.

Scientists have made many brilliant discoveries by applying Mendel's principle.

For example, here are three heads of barley -- I brought them along to illustrate --

EISENHOWER:

They look very much like wheat, don't they? They have the same kind of cluster of grains at the tip of the straw. And the beard covering the grain is much the same, too.

(over)

REED:

Except that it's somewhat longer than the beard on wheat. The beard on this barley grows about six inches beyond the tip.

Now, notice this first head of barley. Run your fingers along that beard.

EISENHOWER:

Well, it looks smooth enough -- but it feels like a file -- or a blade of saw-grass -- doesn't it?

REED:

If you could put it/under a magnifying glass you'd see why. Each straw of the beard is covered with tiny thorns; something like the thorns on a rose bush.

EISENHOWER:

Those are the barbs --

REED:

Yes. This particular barley is the Manchuria. Notice that the grain is a very light yellow. Farmers like the Manchuria barley except for the barbs.

EISENHOWER:

I've heard dozens of farmers say they simply won't grow barley because of the barbs.

REED:

So have I. And I feel much the same way. When you shock ordinary barley, those barbs nearly scratch your arm to pieces. And the beards break off and get down your neck -- and into your shirt-tail. Then they work into your skin. And after the barbs hook into your skin, they just seem to crawl.

EISENHOWER:

Well, couldn't a fellow who knew Mendel's laws of inheritance produce a variety of barley without a beard?

REED:

He could, but he wouldn't want to. The beard keeps the grain from shattering. A better plan would be to keep the beard but get rid of the barb. But I'll come to that in a minute.

Now feel the beard on this second variety of barley.

EISENHOWER:

That one is quite smooth, isn't it?

REED:

It is that. It's a variety that Dr. H. V. Harlan, of the Bureau of Plant Industry, found in some importations from Russia. Its beard is smooth. But notice that the grain and straw are black. Farmers don't like black barley, even though it is fairly free from barbs. So, Doctor Harlan said, "Why not cross the barbed white barley with the smooth-bearded black barley? We should be able to get a white barley with a smooth beard."

EISENHOWER:

In other words, do the same thing Mendel did with peas?

REED:

The general principle is just the same. Using the principle, Harlan produced this third variety of barley. Feel the beard.

EISENHOWER:

It's as smooth as -- well, smooth as what?

REED:

Possibly velvet. At least that's the name of this particular variety.

EISENHOWER:

Well, that's certainly a fitting name. Does the story end with Harlan's creation of this variety?

REED:

No. There's more to it. Dr. W. K. Hayes, of the University of Minnesota, took up the work after Harlan made the first crosses. Hayes selected the best varieties and produced seed for distribution to farmers. Farmers are now growing thousands of acres of this Velvet barley, and other barleys bred from the smooth-bearded black barley from Russia.

EISENHOWER:

The result with barley certainly illustrates the value and possibilities of scientific breeding.

REED:

It's one good example all right.

Another one is the new variety of sugar beet, that resists the curly-top disease.

EISENHOWER:

I understand that variety rescued the sugar beet industry in some sections.

(over)

REED:

It did that. The disease cut yield so much that it wasn't profitable to grow varieties of beets susceptible to curly top. So the scientists developed the resistant variety. Then there is the wilt-resistant alfalfa, and early-maturing corn to avoid frost damage.

EISENHOWER:

Speaking of corn, the Department has just announced a new variety of corn that resists damage by chinch bug. Morse gave a report on it yesterday.

REED:

Well, we could make quite a catalog of the recent results of scientific plant breeding. Scientists have given us new varieties of strawberries especially suited for the frozen pack -- and a dwarf sorghum which can be harvested with wheat harvesting machinery -- and a potato that resists virus disease -- melons and peas that resist wilt -- and a great many other improved varieties.

EISENHOWER:

But so far, we've said nothing about improving the productive efficiency of livestock by creating new blood lines.

REED:

Well, at the moment, I think of several outstanding developments with livestock. The Department sheep men crossed the Rambouillet and Lincoln breeds of sheep and produced the Columbia. The Columbia is especially suited to the Northwest.

EISENHOWER:

What about cattle?

REED:

For one thing, the Department beef-cattle men are developing a cross between the Brahman cattle and the Aberdeen-Angus cattle. They aim to create a breed of cattle especially suited to the South. There's a great deal of other important breeding work with beef cattle, dairy cattle, poultry, and other livestock. But, in general, we haven't made nearly as much progress with livestock as with plants.

EISENHOWER:

Why is that?

REED:

There are several reasons. For one thing, livestock have a long life cycle. You can't get and test results nearly as quickly as with plants.

EISENHOWER:

I suppose the high cost of breeding stock also enters in.

REED:

It does -- decidedly. In plant breeding, the cost of seed is a small item. You can afford to make hundreds of tests; you can afford to make mistakes. But a single breeding animal may cost several hundred -- or several thousand dollars. You must breed animals more cautiously and on a much smaller scale.

We also are handicapped because we lack good measurements of performance.

EISENHOWER:

That is, you question the value of some of the present standards for judging quality?

REED:

I think I would put it another way. Let's take cattle. Cattle breeders have done outstanding work in developing various blood lines. They certainly have demonstrated the possibilities in breeding. But I think some of the breed standards simply don't go far enough.

EISENHOWER:

For example?

REED:

Well, I have in mind one of our best-known breeds of dairy cattle. This breed was developed on an island off the coast of Europe. The islanders started with cattle of all colors from all over Western Europe. By long, careful selection of breeding stock, they bred a beautiful line of dairy cattle with the desired color. They bred primarily for color -- plus conformation. But -- conformation to what? Well, mainly, conformation to breed type.

You see, many of the present ideas on breed type carry over from the days before Mendel opened up the new possibilities in breeding. And they fail to include some of the more important points of productive efficiency.

EISENHOWER:

Such as milk production?

REED:

Milk production is one point. The value of a dairy cow also depends on such points as the butterfat content of her milk, total butterfat production, and the amount of feed she needs to produce a pound of butterfat.

(over)

EISENHOWER:

I take it you can breed for high butterfat content of milk, high total butterfat production, and low feed consumption per pound of butterfat produced -- just as Mendel bred for a particular kind of pea, or as Harlan bred for a smooth-bearded barley.

REED:

We can, as we learn more about how to measure the genetic make-up of our breeding animals, and how to develop animals that will breed true for the particular characteristics we want. Of course, we have already made encouraging progress in breeding better dairy cows, - better from the standpoint of milk and butterfat production. For instance, the progeny test is a big step forward. Testing a bull's female progeny for milk and butterfat production is a means of measuring his genetic make-up, - a means of determining whether he possesses the ability to sire daughters of high-producing ability.

We are also developing ways to measure the breeding value of other kinds of livestock.

EISENHOWER:

I take it that you have scarcely scratched the surface of the real possibilities in animal breeding. And there are still vast possibilities in plant breeding.

REED:

That's right. In both plant and animal breeding, the scientists are trying to develop higher yielding, and generally more efficient, strains. Improved strains will cut the farmer's costs. From past accomplishments, I think we can expect much more progress in developing crops that resist insect damage, and both crops and livestock that resist disease. Then, of course, the scientists are continually developing new forms of life.

EISENHOWER:

The new tangelo for example. As I recall, the tangelo is a cross between the grapefruit and the tangerine.

REED:

Yes. The tangelo is a recent example of a new form of plant life.

EISENHOWER:

Well, so far, Mr. Reed, we've reviewed some of the problems and possibilities in plant and animal breeding. Before we conclude, let's come back to the genetics committee of which you are chairman. You indicated that you are combing this country and the world in general for the very best strains of plant and animal life. And after you get that information, you will present it in a kind of "Who's Who" of superior germ plasm. I suppose this "Who's Who" will tell farmers and scientists the location of superior strains of all kinds of crops and livestock?

REED:

Yes -- and also point out to all interested in breeding work the further possibilities. With that as a blueprint, we can concentrate on solving some of the main problems of efficient production by using the principle of genetics and creating superior strains of plant and animal life. Then, as our final step, we will try to develop better ways of getting these superior strains in the hands of scientists, farmers, and others who can put them to practical use.

EISENHOWER:

And we will present the results of the committee's early work in the 1936 Yearbook of Agriculture.

REED:

That's the plan. The report on the genetics program will take up a good part of the 1936 Yearbook of Agriculture -- the Yearbook to be issued next year.

EISENHOWER:

Well, thank you very much, Mr. Reed. In a later broadcast, I should like to go into some of the outstanding accomplishments of geneticists with specific crops and livestock.

Until this same time next Tuesday -- goodbye.

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the chemicals that kill them.

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THE HOUSEHOLD CALENDAR

The Annual Campaign against Clothes Moths

A radio interview between Miss Ruth Van Deman, Bureau of Home Economics, and Dr. E. A. Back, Bureau of Entomology and Plant Quarantine, broadcast Wednesday, May 8, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associate radio stations.

---ooOoo---

SALISBURY: Miss Van Deman, I see you have Dr. Back of the Bureau of Entomology with you today. That's a combination that bodes ill for the clothes moths.

VAN DEMAN: Yes, Dr. Back and I are here for our third annual campaign against the clothes moth. Chemical warfare, we might call it.

SALISBURY: Are you going to give 'em tear gas or poison gas?

VAN DEMAN: Oh, we won't stop with bringing tears to the eyes of the moths. When we start to wage chemical warfare on moths, we believe in giving them such a powerful dose of napthalene fumes or paradichlorobenzene that they turn up their toes forever.

But Dr. Back, I didn't mean to steal any of your thunder. Perhaps this year has brought some newer and better ways to get rid of moths. What about those cedarized closets we hear so much about?

BACK: You mean the cedarized paper closets and chests that are said to be tight enough to keep moths out and protect your garments after you put them in?

VAN DEMAN: Yes, those are the ones. Lots of women I know think they're absolutely moth-proof. Some even think they'll kill moth eggs.

BACK: The experiments in the Department of Agriculture don't show anything like that. Quite to the contrary. These cedarized chests and closets are not tight enough to keep a full-grown moth from finding her way inside, and once she's inside there is nothing to stop her from laying her eggs on the woolens and furs. And there's nothing to keep those eggs from hatching into the white worms that do the real damage.

VAN DEMAN: The smell of cedar doesn't really put a check on moths then?

BACK: No, none at all. And it isn't permanent anyway. It comes either from cedar oil sprayed onto the paper or from a pad of cedar shavings. Before the summer is very far advanced this pleasant smell of cedar disappears almost entirely and you have left just an ordinary paper container.

VAN DEMAN: Anyway, it takes something stronger than a strong smell to drive moths away or to kill them, doesn't it?

BACK: Yes, as you suggested a moment ago, when a homemaker starts out to rid her property of moths, she might as well make up her mind to use plenty of the chemicals that kill them.

VAN DEMAN: Well, what do you call plenty, Dr. Back? Let's say we had a good-sized trunkful of woolens and furs here, how much napthalene flakes or paradichlorobenzene crystals would you say to put in that trunk?

BACK: About a pound if the trunk is reasonably tight and has a good tight-fitting lid. I'd rather be generous with the napthalene or the paradichlorobenzene and play absolutely safe. What kills moths is the gas given off by these slowly evaporating chemicals and you need enough of them to give a sufficiently concentrated gas to do the work over a long period.

VAN DEMAN: What about a storage closet? If you recommend a pound to a good-sized trunk, how much would a whole closetful of things need?

BACK: Probably 2 or 3 pounds to the average closet. If you can seal it up tight with gummed paper or with the tape professional exterminators use, then you can get along with less. For instance, if you can seal up your trunk that way, you might get along for two or three months with half a pound instead of a pound. The mistake people often make is not using enough of these chemicals to give a concentrated vapor. They think because they can smell the vapor and are repelled by it themselves that the moths will be affected the same way. But they aren't. I've seen moths go right on feeding in an atmosphere that to me was unpleasantly heavy with the odor of napthalene. To kill adult moths and prevent eggs from hatching, you must have a concentrated gas.

VAN DEMAN: Than a little gadget that I saw advertised the other day as just the thing to hang up in the closet for all the year around moth protection, wouldn't do very much protecting.

BACK: No, it might help a little, but it couldn't be counted on to keep moths out of the closet, or to kill any.

VAN DEMAN: The description of this device said "ingredients tested and recommended by U. S. Department of Agriculture."

BACK: But here's the catch in that. This device probably does contain one of the chemicals we recommend as a moth killer -- probably paradichlorobenzene. But as I've tried to make clear, it is one thing to use the right chemical and another to use it in sufficient quantity to be effective.

SALISBURY: Miss Van Deman, before you and Dr. Back go, I know there are a number of people in this audience who would like to hear you spell that seven syllable jaw-breaker -- paradichlorobenzene -- will you demonstrate?

VAN DEMAN: I'll try to. It's spelled exactly as it sounds -- p-a-r-a-d-i-c-h-l-o-r-o-b-e-n-z-e-n-e (para-di-chloro-ben-zene). And with that I'll say good-bye for this time.

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NEW USES FOR FARM BY-PRODUCTS

A radio interview between M. S. Eisenhower, Director of Information, and Dr. Henry G. Knight, Chief of the Bureau of Chemistry and Soils, in the Department of Agriculture period of the Farm and Home Hour, Tuesday, May 14, 1935, broadcast by NBC and a network of 51 associated radio stations.

--ooOoo--

SALISBURY:

We have back with us today, Mr. M. S. Eisenhower, Director of Information, for another of his weekly reports on interesting new developments in agricultural science and research. Today, he will talk over with Dr. Henry G. Knight, Chief of the Bureau of Chemistry and Soils, recent progress in the search for new uses for products of the farm. All right, Milton ---

EISENHOWER:

Thanks, Morse -- and hello, everyone.

In previous broadcasts, I've told you about several new committees which have been set up in the Department to study and map out plans on important lines of research. Several weeks ago, Mr. Barre and I told you about the work of the cotton research committee. Last Tuesday, Mr. Reed and I discussed the extensive plans of the Department committee on genetics, or plant and animal breeding. Today, with the help of Doctor Knight, I want to tell you about the work of a Department committee on new uses for farm products and by-products. This committee has been on the job for several months; it is surveying critically the present research in this field and is weighing the possibility of developing additional scientific studies.

At present, we use profitably only about half of what we grow. The other half, we either throw away, or turn to some low-yielding use. For example, for each pound of corn or wheat the farmer markets, he discards a pound of fodder or straw. Then, of course, fruit and vegetable growers grade out a good percentage of their crops as culls; and they lose part of the crop as peelings and seeds.

Now, to a chemist, such waste is a persistent challenge. Chemists want to make something profitable out of the straw, and the cull fruit, and the seeds. So they are hard at work in their laboratories to find ways to use those materials. And they are constantly finding new, practical uses for the present waste products -- uses that increase farmers' returns from their crops. For instance, with cottonseed being put to many commercial uses, farmers get more for their cotton crop than they would if the seed were still discarded as it once was.

Naturally increased utilization of farm products helps dispose of surpluses; even so, I suspect Doctor Knight will caution us against building up false hopes about new uses for farm products doing away with the need for production adjustment of the export crops. But let's let Doctor Knight go ahead with today's report.

(over)

KNIGHT:

Before we get into the main part of our talk, Mr. Eisenhower, I'd like to add a word to what you just said.

EISENHOWER:

All right.

KNIGHT:

In outlining a few of the opportunities to develop new and larger uses for farm products, I want to point out at the same time a few of the difficulties. Research is pretty much a long-time job. And even after new facts are developed, we often have to wait for an economic situation where the new facts can be put to work in the factory, or on the farm, or in the home. Hence, we cannot hope for our chemical and other technological research to meet immediately the emergency problem. That problem has its roots in many things, including a large producing plant and a diminished foreign market. It seems to me that the search for new ways to use farm products, and plans to adjust production, must go hand in hand.

EISENHOWER:

What you say, Doctor Knight, explains more fully the point I had in mind.

Now, let's see; I believe you plan to tell us today about present developments in the manufacture of sweetpotato starch and citrus by-products.

KNIGHT:

I thought I also would touch on the use of farm products in the manufacture of fiber board and cellulose.

EISENHOWER:

Fine.

Let's take, first, the story of sweetpotato starch - and as background for the latest chapter in the story, I wonder if it wouldn't be a good idea to review hurriedly the earlier chapters?

KNIGHT:

I think it would.

EISENHOWER:

Well, suppose you check my memory. As I recall the situation that has prevailed for many years, sweetpotato growers have had to grade out a large percentage of the crop as culls.

KNIGHT:

Yes, - the culls often run 10 to 30, or even 50, percent of the crop.

EISENHOWER:

Now, of course, farmers feed some of the culls to livestock. The canning industry cans some of the off-size potatoes, which don't find a ready market but which are perfectly good food. Even so, the most of the culls do not find a profitable use.

KNIGHT:

You're right, so far.

EISENHOWER:

The chemists saw the possibility of developing a high-grade sweetpotato starch for textile sizing; that is, to make from the sweetpotatoes, the stuff the textile manufacturers use to stiffen the goods, and to give them the gloss you see on dress goods or sheets when you buy them at the store. Ordinary starch from white potatoes does not make satisfactory sizing, but starch from sweetpotatoes does.

KNIGHT:

That's right. But, of course, you have to get rid of that yellow color in the sweetpotato. That was our biggest problem.

That, and finding a satisfactory method to manufacture the starch.

EISENHOWER:

Well, to sum up the story thus far, scientists in the Bureau of Chemistry and Soils did find a way to make satisfactory textile sizing from sweetpotatoes. Now, what is your next, and newer, development?

KNIGHT:

Well, very often, finding a way to use cull sweetpotatoes, or some other farm waste, is by far the easiest part of the job. After you find a new use, the question is, Can you put the product on the market at a price to compete with other products? Last year, we tackled the cost problem on a factory scale in a demonstration factory in Mississippi. I think we moved a step nearer to the solution.

EISENHOWER:

I suppose you refer to that relief project.

KNIGHT:

Yes -- and it's a most interesting project.

In lower Mississippi, and other parts of the extreme South, a great many farmers formerly marketed their products to the people in the lumber mill towns. But after the timber was cut away, the number mills pulled out. The farmers lost their market; they were left high and dry.

(over)

Now, this cut-over pine region of the lower South includes about the best sweetpotato land in the country. Many folks thought stranded farmers might grow sweetpotatoes for a living.

EISENHOWER:

That is, if the farmer could find a market.

KNIGHT:

Exactly. The market was the problem.

Now, we wanted a chance to try out ways to make starch from the sweetpotato, on a factory scale. The Relief Administration wanted new industry for the cutover pine country. So, the two of us, in cooperation with the Mississippi Agricultural Experiment Station and the farmers, set up a demonstration factory. Last year, the factory made 70 tons of sweetpotato starch; it sold the starch to local textile mills at five cents a pound. The farmers made more money out of sweetpotatoes than they would have if they had tried to grow cotton on their land.

EISENHOWER:

You also produced some stock feed, didn't you?

KNIGHT:

Yes, we did. You see, in manufacturing the starch, you get a pulp by-product. The pulp has some starch left in it, but not enough to pay to extract it. At the factory in Mississippi, the pulp was dried. The State Experiment Station fed the pulp to beef cattle. Cattle that were fattened on the sweetpotato pulp brought a market premium.

EISENHOWER:

So, the Mississippi farmer sells his sweetpotato culls to a local starch factory, the starch factory sells the starch to local textile mills, and the pulp provides high-grade feed for the local livestock industry. That certainly about completes the circle.

What prospect do you see for further development of the industry?

KNIGHT:

Well, we expect to try out new equipment this year to cut the cost of manufacturing still further. After the agencies cooperating in this factory demonstrate how to make starch from sweetpotatoes at a profit, private industry can take hold of the method. Private industry is following our work very closely.

EISENHOWER:

Have you taken out a public-service patent on the process so that it will be free to anyone who wishes to use it?

KNIGHT:

Yes, we have. By taking out a public-service patent we make sure that all the people have an equal opportunity to profit from our research.

EISENHOWER:

Well, so much for sweetpotato starch. Now, let's hear about your work with by-products of the citrus industry. I suppose the problem with citrus fruits is much the same as with sweetpotatoes; you are developing profitable uses for the culls.

KNIGHT:

To a large extent, but not entirely. And, right here, let me say something about that word cull. Many people think a cull is not fit to eat -- or, at least, that it is decidedly inferior as food. Actually, a cull is merely the odd-size or sometimes off-color fruit which is mature, and nutritious, and ought to be used.

Well, a number of years ago, the citrus growers of California, especially the lemon growers, were loaded down with so much fruit they could not sell it. They called on the Department for help. By careful research, our chemists developed ways to manufacture lemon oil, orange oil, citrate of lime, and citric acid from the cull fruit. They also developed ways to manufacture pectin, marmalade, and even stock feed. They helped to develop an American industry to use those products -- and the industry now takes 45 to 50 thousand tons of cull oranges and lemons each year. It brings growers an annual profit of nearly a million dollars.

EISENHOWER:

So the chemists, by developing a new market for citrus fruits, did help solve the surplus problem.

KNIGHT:

But not for all time. The increase in production outstripped the new market. Consequently, the citrus industry has had to adopt plans to control the amount put on the market as fresh fruit.

EISENHOWER:

You are still looking for additional uses for citrus by-products, aren't you?

KNIGHT:

Yes, indeed. At present, we are making good headway on the manufacture of high-grade citrus wines and cordials. I am particularly hopeful about these. Surplus fruit can be taken off the market and used for the manufacture of wines, cordials, and so on, and then marketed the year round. This will help stabilize the market for fresh fruit.

Then, too, we are getting good results in preserving orange juice by the heat treatment.

(over)

EISENHOWER:

You say by the heat treatment. What happened to that frozen orange juice idea? I haven't heard anything about that for some time.

KNIGHT:

Frozen orange juice didn't turn out so well. We find orange juice can be preserved better by the heat method.

EISENHOWER:

I've noticed lately that stores here in Washington have citrus juices in cans. I suppose they are the heat-treated products.

KNIGHT:

Yes, they are. California began to put out canned orange juice commercially last summer. Florida got under way during the past winter.

And, by the way, I should point out that the citrus industry itself has done a great deal of research work on the heat method. As often happens, scientists both in the Department and in industry are working on the same problem - and each group is contributing to the solution.

EISENHOWER:

What you said a moment ago about citrus wines I suppose would also be true of these preserved juices. They not only provide a market for the cull fruit but also lengthen the marketing season; that is, folks can use the canned citrus juices in the off-season for fresh fruit.

KNIGHT:

Yes, and widen the market. You can ship the canned juice to any part of the world.

EISENHOWER:

Well, you've told us about new uses for sweetpotato culls and citrus culls. I suppose in your next report - on fiber board and cellulose - you leave culls and talk about uses for waste products.

KNIGHT:

Well, part of the materials used in making fiber board and cellulose are waste products, but by no means all of them. For example, some western farmers market their grain and burn their straw. But other farmers use straw in many ways. Some kinds of straw, along with hulls, corn stover, and so on, are worth something as feed. So, they are hardly waste materials. They simply bring a low return. We are trying to find more profitable uses.

EISENHOWER:

Corn fodder, for example, would bring a higher return as a fiber board than as a feed.

KNIGHT:

Exactly.

EISENHOWER:

Well, the building industry is already useing a great deal of fiber board, isn't it?

KNIGHT:

Of some kind, and for some purposes, yes. For example, a number of factories are making and selling large amounts of insulating board made from corn stalks, straw, and sugar cane bagasse. I want to call attention in particular to a building board made from corn stalks. I brought a piece along with me to show you.

EISENHOWER:

Well. . . This building board is quite solid and heavy, isn't it? And it has a glossy finish. Just how is it used?

KNIGHT:

This wall board is used instead of plaster, or as a subsiding. It also makes a fine floor covering.

EISENHOWER:

Do builders use much of it?

KNIGHT:

Only one factory is making it at the present.

EISENHOWER:

If the industry expands it certainly would open up a tremendous new market for corn stalks. Are the prospects encouraging?

KNIGHT:

Well, a new product of this kind has its troubles. Contractors, and builders, and workers are used to other materials, and they are slow to change. Then, of course, cost enters in. The building industry tells the manufacturer: "We will use your cornstalk wall board if you can sell it at a cost to compete with other materials." And the manufacturer replies, "We can sell it at a low cost when you begin to buy it in large quantities." That gives you something of a deadlock.

EISENHOWER:

It certainly indicates the problem in finding a market, even after you develop a satisfactory product.

I presume the new cellulose from sugarcane bagasse is in about the same situation as the wall board.

(over)

KNIGHT:

Just about. We tackled that problem because we saw thousands of tons of bagasse, which is left after the juice is squeezed out of the sugar cane stalk, simply going to waste. After years of work, we found how to manufacture that waste into cellulose.

EISENHOWER:

I've often noticed some of that cellulose in your office. It looks very much like raw cotton.

KNIGHT:

Except that the cellulose is a little softer and has a little more of a silky feeling.

EISENHOWER:

What is it used for?

KNIGHT:

Various grades of cloth are woven from the cellulose. Also, a few factories are beginning to use it in the manufacture of paint lacquers and explosives. All told, further research will be necessary before industry begins to use the sugarcane cellulose on a very large scale.

EISENHOWER:

Thank you very much, Doctor Knight.

I know we could talk on and on about new uses for by-products of the farm. But our time is up; so we'll have to wait until next Tuesday when I hope to talk over with you or some member of your bureau further possibilities in the utilization of farm products.

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WHAT COOPERATION IS DOING FOR SOUTHERN FARMERS

A radio talk by C. L. Chambers, United States Department of Agriculture, delivered on the Land-Grant College Radio Program, May 15, 1935, and broadcast by a network of 59 associate NBC radio stations.

You have doubtless read in the papers or heard of the voluntary farmer pilgrimage to Washington. Among the farmers who are here now are thousands of Southern cotton growers. I presume you will be interested in reviewing some of the happenings that have aroused their widespread interest in Governmental affairs in which they have cooperated. In 1932 the average farm price for cotton had fallen to less than 5 cents per pound, while the things farmers bought had advanced 14 percent above pre-war levels. The price farmers received for cotton averaged 44 percent below pre-war levels. Gross farm income from cotton in 1932 and 1933 had fallen to less than 1/3 of its value in 1928-29, or from $1,470,000,000 to $464,000,000. This meant a decline in the average gross income per farm family from $735 to $232. To make matters worse, cotton growers had to share this shrinking income with more than a million friends, relatives, and neighbors, who since the past 1929 period were thrown out of city employment and went back to the land.

This situation with regard to the Cotton Belt was more or less representative of farming conditions generally. With huge piles of surplus export crops and low prices, a great portion of our buying public had almost ceased to purchase goods. Cooperating with their Government two million southern farmers have wrought a remarkable change. In March of this year the cotton price was 11.5 cents; more than double the low price of 1932. The farm value of cotton including rental and benefit payments had nearly doubled. It had risen from $464,000,000 in 1932-33 to around $836,000,000 in 1933-34.

With increased income many farmers are finding it no longer necessary to depend on public relief and therefore have their faith in themselves and their Government restored. Many farmers have bought automobile license tags and can buy gas; therefore the family car is no longer in storage. Storage batteries have been bought and the radio is functioning again. Two year's taxes have been paid thus strengthening local Government, in fact the whole social structure. Automobile sales agencies report business four times as good as in 1932. Local merchants report from 30 to 80 percent increase in sales of clothing to replace those patched beyond further repair. Hardware merchants report as high as 75 percent increase in sales. Large quantities of paint, roofing, farm implements, and articles needed for repair, as well as stoves, cooking utensils, mattresses and other household equipment are purchased. Department-store sales have shown a 78 percent increase in the Atlanta reserve district and a 69 percent in the Dallas district over the low point of March 1933. No wonder farm and business people are so interested in the 3-A program.

But the solving of the Cotton Belt problem is but a part of solving the larger problem of bringing about national recovery and reestablishing both rural and urban prosperity on a more enduring basis.

According to a 1933 survey the gain in carlot shipments from 16 Northeastern industrial States to Southeastern States was 39 percent. Increased industrial activity has resulted in putting back to work thousands of factory workers who manufacture goods farmers buy, as well as salesmen and others dependent on these industries.

Land and its efficient use was and is an outstanding problem. It was necessary to find a way to make effective use of land removed from cotton production, and yet to so adjust plantings as not to defeat the adjustment program designed to aid farmers in other areas who depend on wheat, corn and hogs, and other money crops.

For the most part farmers have used the acreage retired from cotton production for growing food and feed crops for home consumption; soil-improvement crops, and for plantings of forest trees on the less fertile lands. Southern farmers are coming to realize that cultivation of infertile lands adds to the surplus, helps to depress prices, and affords the farmer on such lands only a bare living without the comforts of life. Prospects for home ownership brighten the lives of many. Through following a safe farming system it is hoped to avoid future economic disasters and make cotton a surplus money crop. Its increased purchasing power is now being felt in improved business conditions, both within and without the Cotton Belt. With farm income nearly doubled Southern farmers are again providing their homes with the comforts of which they have long been deprived.

MAY 18 1935

MARKETING GARDEN PRODUCTS IN PASSAIC COUNTY

A radio talk by H. E. Wettyen, County Agricultural Agent, Passaic County, New Jersey, delivered in the Land Grant College radio program, May 15, 1935, and broadcast by a network of 50 associated NBC rad o stations.

--ooOoo--

Good afternoon! We have read of outstanding marketing projects in which counties or entire areas distant from the Eastern markets have been the means of establishing a new industry for that section. Such a project of the county agent in your own area has undoubtedly earned for him your esteem and undying appreciation but for our farmers in the East adjacent to these markets it has caused a real serious problem, for it is very easy to see that any marketing plan that carries no provisions for an increased use or consumption of the product to be marketed invariably, while it may bring relief to one section, automatically injures another. That is exactly the situation that we here in Passaic County, New Jersey, have been called upon to face. It has not been the popular job of expanding our acreage or of enlarging our marketing area but a fight to HOLD the market that our growers have enjoyed for generations.

It is well to consider that for years and years the consumers in this metropolitan area depended almost entirely on our gardeners with their intensive small farms at the edge of the cities, and ofttimes right in the city, for practically all of their supplies of fresh or green vegetables, and the entire market gardening industry was developed in order to fill that demand for as many months of the year as possible. On account of it our men had to build greenhouses cold frames and hotbeds to take care of the early and the late crops normally out of season, and also use trenches and pits to store crops so that the season for those crops might be extended throughout the year.

This system made high revenues per acre under skillful management fairly easy to attain and thus a prosperous, progressive group of vegetable growers developed in and about our metropolitan cities.

Then came better transportation facilities, better packages, favorable freight rates and better organized marketing systems, "cutting in" by using a local term) on our markets from the South and the West. As these shipped-in goods appeared in our markets, gradually but surely our growers' season has been cut down and also the demand for some of their crops has been entirely eliminated.

This process has been going on throughout the entire eighteen years that I have been a county agent here and we tried to meet the situation through changes in production methods, increasing yields, better packages and all of those other devices that should enable us to meet competition, but during this time there grew up in our farmers' markets a speculator class who often posed as farmers but who purchased shipped-in goods that were scarce and thus took the cream out of our local markets. This class grew to such an extent that they became the favored class in our local privately owned markets apparently, and while these men appeared to prosper our growers found their incomes decreasing.

(over)

These types of speculators who are really commission merchants without stores, demanded choice stands in our farmers' markets and often handled only the goods that they could make the most profit on, leaving the local produce dealer and grower with the problem of supplying to the retail dealers and consumers the other needed lines, which were all too often the unprofitable lines.

This, as you can imagine, brought a series of protests, petitions and ordinances from our growers and commission men, but all that failed to register on the market owners, and so our department was called upon to assist in solving this marketing problem, and when negotiations failed to get anywhere at the original market site a committee decided to move. So there we built in the City of Paterson, out of the heavy traffic area but adjacent to mail line railroad facilities and with direct super-highway connections to New York and Newark and right in the heart of the outlying metropolitan district, a produce market, owned, controlled and operated by farmers.

In this market only farmers may sell on our market square but in order to keep the industry together our growers provided that modern commission houses be built with railroad siding so that the entire demands of the consumers in this area could be met most efficiently.

So that the farmers of the Paterson area have built, with the help of the Bank for Cooperatives of the Farm Credit Administration and whatever advice we could give them, a centralized marketing place where they will always have an opportunity of marketing their goods direct to retailers in fresher condition and in competition with similar goods and with shipped-in goods classified as such. People desiring shipped-in goods in our seasons may secure them from our adjacent commission houses. This, coupled with a city ordinance prohibiting wholesale peddling in the streets, gives the local grower an opportunity of holding his market and providing a centralized marketing area, free from traffic congestion, absolutely modern and sanitary and in which both buyer and seller can operate more efficiently. Market fees and rents are low, profits are limited by law, the entire industry is together, and through a more efficient cooperative tie-up the consumers in this area will not be called upon to pay a lot of surplus handling charges in every package of food they buy. Truly a shorter route and a more efficient one from farm to consumer.

HOW FARMERS IN MY COUNTY PROFITED FROM THE WOOL POOL

A radio talk by H. L. Riggle, County Agent, Spencer, West Virginia, delivered in the Land Grant College radio program, May 15, 1935, and broadcast by a network of 50 associated NBC radio stations.

--ooooo--

Cooperative wool marketing began in Roane County, West Virginia, in the year 1929 when the sheep producers organized the Roane County Wool Association. The purpose of this organization was to improve the quality of wool and secure a fair price for their product according to the quality and grade produced. Before this no definite, organized plan of marketing of wool existed in this country. All wool was sold direct to local dealers and buyers on a flat rate basis. Hence the producer had no incentive to improve the quality of wool.

But things changed when the Roane County Wool Association was organized. In cooperation with the West Virginia Wool Association and Agricultural Extension Service of West Virginia University, our county organization formed a wool pool. All producers in the county are offered the services of the organization if they will consign their wool to the pool by the first of May of each year. After the closing date, all the fleeces in the county pool are turned over to the State Organization. The State pool offers our fleeces for sale to the highest bidder, along with the fleeces from the other county pools. The wool is sold in two classes, namely, clear medium wool and rejects. Mills and brokers are furnished the desired information as to assembly points, approximate number fleeces at these points and terms and conditions of sale. Bids are received f.o.b. shipping point, on the county pool individually, or the state pool as a whole. Sealed bids are opened by the executive committee of the State association at a designated time and place, and the successful buyer determined, after which, a schedule of assembly is worked out, and the producers are notified to deliver their wool. At assembly points the wool is weighed, graded, resacked and loaded on the car at an an expense not to exceed 1¢ per pound. The expense is deducted from the sale price of the wool.

This system has been in operation for the past six years and has proved very efficient. During this period Roane County farmers marketed cooperatively 208 thousand 300 pounds of wool. Their wool brought $50,515 gross. Each year the pool has increased the number of pounds of wool handled and has served more farmers.

In the first year 165 producers consigned some eighteen thousand pounds of wool. Last year, 372 producers consigned fifty-two thousand pounds. The wool has gradually improved in quality. In 1929 there were 19% rejects. In 1934 there were 7.2% rejects. The price paid for the wool by the brokers and mills has been entirely satisfactory each year. At the time the wool is sold the prices have been in accord with the wool markets of the United States and in many cases above the market quotations, and especially have they exceeded the local prevailing country price.

(over)

The Roane County Wool Pool has been of great benefit to the farmers. It has improved the quality of the wool produced in the county. It has brought the wool growers larger incomes than they would otherwise have had. It has unquestionably been the price fixing factor for the territory, and has so definitely raised the price level that wool producers outside of the pool have greatly benefited from its existance. The grading demonstrations held in connection with the assembly, and the premium paid for the clear medium or good wool, has definitely caused the production of a higher quality wool. This is shown by the decrease in the percentage of rejects. It has furnished a safe and secure outlet direct to the processors or mills, for both the small and large producer, at a minimum of marketing expense, thereby returning a higher percent of the market value of wool direct to the producer. In addition it has also brought about a pronounced unity of effort among the farmers and has demonstrated the ultimate value of cooperative effort. The farmers have been well pleased with the services rendered by the County and State Wool Association in cooperation with the Agricultural Extension Service of West Virginia University and are appreciative of their efforts.

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U. S. Department of Agriculture

POSSIBLE NEW USES FOR FARM PRODUCTS

A radio interview between Mr. M. S. Eisenhower, Director of Information, and Dr. W. W. Skinner, Bureau of Chemistry and Soils, in the Department of Agriculture period of the National Farm and Home Hour, Tuesday, May 21, 1935.

--ooOoo--

ANNOUNCER:

In the absence of Morse Salisbury, I'll report to you that the Director of Information for the Department of Agriculture, M. S. Eisenhower, is marching on the microphone with a big -- Well, it looks something like a young cannon. Just what do you have there, Mr. Eisenhower?

EISENHOWER:

A corncob.

ANNOUNCER:

What! A corncob two feet long and big around as a stovepipe!

EISENHOWER:

Certainly! This is the kind of corn we grow in Kansas.

ANNOUNCER:

On Morse Salisbury's behalf, I challenge your statement. Only Iowa could grow corn with a cob that size.

EISENHOWER:

Well, this corncob belongs to the gentleman right here, Dr. W. W. Skinner of the Bureau of Chemistry and Soils. Who's right, Doctor?

SKINNER:

You're both right, gentlemen. This big cob was produced by a cross between the best strains of corn of both Kansas and Iowa.

ANNOUNCER:

With such diplomacy, Doctor, I suggest we appoint you to decide which State grows the best potatoes, Maine or Idaho.

SKINNER:

Well, I've eaten potatoes from both Idaho and Maine, and I don't think I've ever tasted potatoes any better.

But, speaking seriously, this monster corncob is simply a very large, wax imitation. I had it made to show the vast possibilities in using waste products of the farm.

(over)

ANNOUNCER:

Well, I guess you and Mr. Eisenhower are getting into the weekly report on agricultural science and research. So, I'll leave you to yourselves.

EISENHOWER:

Thanks, Bill Coyle, and hello everyone --

Those of you who were listening last Tuesday, will remember that Dr. Henry G. Knight, Chief of the Bureau of Chemistry and Soils, and I told you about textile sizing from sweetpotatoes, and fiber board from corn stalks, and cellulose from sugar cane bagasse, and new products from other farm wastes.

Now, today, Doctor Skinner and I want to look a bit into the future. Doctor Skinner heads up a Department committee on the utilization of agricultural by-products. The committee is canvassing the possibilities in this whole field. Doctor Skinner, let's begin by outlining some of the possible developments.

SKINNER:

Well, as you said last week, Mr. Eisenhower, we chemists see tremendous opportunities to manufacture new products from farm crops.

Take corn. A man puts a good share of his time, and work, and fertilizer, and soil fertility into the cob. But what does he get from the cob in return?

EISENHOWER:

When I was a kid, Doctor, we used to burn the cobs in the fireplace.

SKINNER:

I imagine you were pretty busy trying to keep the fire going.

Now, I suppose to most folks the corncob is the most worthless product of the farm. But let's take a look at this big corncob we began talking about a moment ago.

Catch hold of that handle, Mr. Eisenhower, ... on the butt end of the cob.

Now, pull that handle and you'll find a big metal cylinder slide out of the end of the cob.

EISENHOWER:

Sure enough. That's rather ingenious. . . But what's this cylinder supposed to be?

SKINNER:

It represents the materials in the corncob.

Now notice that the cylinder is marked off into three sections.

EISENHOWER:

Let's see, the first section is marked "cellulose" - the second, "lignin" - and the third, hemi -- Oh, yes! "Hemicellulose."

SKINNER:

In other words, like all other plant life, the old corncob you see lying around the corn crib, or feed lot, or hog pen, contains three materials - cellulose, lignin, and hemicellulose.

Now, you'll notice the cylinder has hinges down the side. Just flip that catch and the cylinder opens.

EISENHOWER:

Well, this certainly is a novel arrangement. . . Shelves inside the cylinder. . . and a number of little bottles on the shelves. It looks very much like a medicine cabinet.

What's the idea of the bottles?

SKINNER:

Well, here's the idea of the whole thing -- You take the worthless corncob. You pull the metal cylinder out and you find the corncob is composed of cellulose, hemicellulose, and lignin. The chemist analyzes those three materials and finds the nine chemicals you see in these bottles inside the cylinder.

EISENHOWER:

This first bottle, Doctor, looks like iodine.

SKINNER:

Read the label.

EISENHOWER:

Oh, yes. . . The label says "furfural." Furfural was a chemical curiosity up until about 10 years ago, wasn't it?

SKINNER:

Yes, a chemical curiosity, and it sold for about 25 to 30 dollars a pound. But, through a brilliant piece of research, my colleague, Dr. F. B. LaForge, found a new way to make furfural at an amazingly low cost from corncobs, oat hulls, cotton hulls, and so on. Today, you can manufacture furfural in carload lots for about nine cents a pound.

EISENHOWER:

Is furfural the stuff they use in making those hard rubbery trays you see around restaurants and cafeterias?

(over)

SKINNER:

Furfural makes a plastic material something on that order. The furfural plastic wears remarkably well. The printing industry is now using furfural in printing plates; I'm told that they wear eight to ten times as long as metal plates. You also can mold furfural into combs, and rims for your glasses, and toothbrush holders, and belt buckles and buttons, and many other products.

EISENHOWER:

All from a corncob! Our friends out in the Corn Belt must be raising their eyebrows about all this, Doctor.

SKINNER:

Oh, I haven't even started yet.

Furfural happens to be the only product from the corncob that is now made commercially at a profit. But the chemicals in these other eight bottles hold future possibilities.

EISENHOWER:

Let's see. . . the second bottle from the corncob is labeled "adhesive."

SKINNER:

Yes, adhesive.

In making furfural, you get this heavy, black, adhesive mixture as a left-over.

Here's a mallet made from adhesive.

EISENHOWER:

It's certainly heavy, isn't it? It feels almost like iron.

SKINNER:

And then here's a briquette made from coal dust. We mix the corncob adhesive with the coal dust to make the dust stick together so you can handle it and burn it. The adhesive also makes the dust burn without any soot.

EISENHOWER:

Well, that's a big help.

SKINNER:

We also can mix this adhesive with ground-up straw to make a straw briquette. In fact, we are experimenting with straw briquette fuel in the laboratory at Ames, Iowa. We think it has real possibilities.

EISENHOWER:

But the corncob adhesive isn't used commercially.

SKINNER:

Not yet.

EISENHOWER:

All right. . Let's look at the third bottle, it's labeled "lignin." I believe you said that lignin makes up about a third of the entire cob.

SKINNER:

Roughly, yes. Lignin is the stuff that holds the cob and plant material in general together and makes it rigid; it's a wonderful reservoir of potential wealth. In fact, I think lignin has just as great possibilities as coal tar had.

EISENHOWER:

That's a rather startling statement, Doctor Skinner. As I recall, Sir William Perkin began to investigate the foul-smelling coal-tar by-products of the gas-light factories in England about a hundred years ago, and since then chemists have discovered something like 60 thousand different coal-tar products.

SKINNER:

That's right. . For example, we draw on coal tar for all of the fast dyes and many medicinals.

EISENHOWER:

Can you make fast dyes from the lignin in corncobs?

SKINNER:

Yes, indeed. But, as yet, not commercially.

EISENHOWER:

Well. . The next bottle in this corncob medicine cabinet is marked "glucose.

SKINNER:

I think we'd better pass over glucose and the rest of these chemicals from the corncob rather hurriedly.

EISENHOWER:

All right. . . The next chemical is cellulose.

SKINNER:

That is used in the manufacture of rayon and explosives.

(over)

EISENHOWER:

Last week, Doctor Knight talked about cellulose - but that was cellulose from crushed sugarcane stalks.

SKINNER:

Well, of course, you can get cellulose from a great variety of products -- from straw, and corn stalks, and peanut hulls, and oat hulls. You also can get cellulose from an old corncob -- and from that cellulose you can make beautiful textile materials. But, at present, other sources are cheaper.

EISENHOWER:

Well, let's pass on to the next bottle; this one contains carbon.

SKINNER:

You know, of course, that you can manufacture carbon products into anything from the carbon for an arc lamp to lamp black.

EISENHOWER:

The next one is xylose.

SKINNER:

Xylose is what we call an inert sugar. We have not found an industrial use for xylose, but we may some day.

EISENHOWER:

The chemical in this next bottle sounds familiar enough. Acetic acid -- or rather, it's glacial acetic acid. That's a commercial product, isn't it?

SKINNER:

Yes. Acetic acid is used in foods and lacquers. But, at present, we can make it cheaper from other materials than we can from the corncob.

EISENHOWER:

And in this next bottle, ethyl alcohol. Even ethyl alcohol from the lowly corncob!

SKINNER:

Yes. But, here again, other materials offer a cheaper source.

EISENHOWER:

Well, we've covered all the nine bottles in your corncob chemical cabinet. In the days of Aladdin and the Arabian Nights, I suppose this corncob might have been looked upon as a genuine magic lamp. Apparently, if you just rub this cob, you can get from it about anything you wish for.

SKINNER:

I sometimes romance a little about the time when a man may ride home from work in his car fitted with electric equipment made from a corncob plastic, upholstered with corncob leatherette, and painted with corncob lacquers; he enters a home built with corncob board and covered with corncob shingles; he exchanges his work coat for an easy jacket made of corncob textiles, pleasingly colored with corncob dyes; he takes an easy chair molded from corncob plastic, reads the evening news from a paper made of corncob pulp, printed with corncob ink, and toasts his toes before an open fire of corncob briquettes; he takes a sip of corncob liquor, and retires to a corncob couch, covered with corncob upholstering.

EISENHOWER:

And possibly smokes a corncob pipe! . . Anyway, Doctor, your romancing certainly emphasizes the point. And I suppose the possibilities in the corncob offer a good example of what we may expect the chemists to do with the stalks, and hulls, and seeds, and peelings, and other leftovers from farm crops.

SKINNER:

Yes. . . But if, as a chemist, I take the privilege to romance a little about new uses for farm products and by-products, I also, as a chemist, ask the privilege to point out some of the problems and obstacles.

EISENHOWER:

That's fair enough. . . Go ahead.

SKINNER:

The possible future developments I outlined don't happen by accident. When you exhaust the supply of one material, or when you want to make a new product from the corncob, you don't just turn a faucet and let the discoveries pour out. Back of these discoveries, are long years of study and investigation. We point to Germany's outstanding accomplishments in the chemical field. But, of course, the Germans don't hold an exclusive magic formula for achievements with chemicals.

EISENHOWER:

The Germans probably look a little further ahead than some of the rest of us

SKINNER:

Exactly. The Germans plan ahead not just for tomorrow, but for 10 or 15 years in the future.

Of course, we're learning.

As one example, take our work on tannin, which the leather industry uses to tan the leather for shoes and other leather goods. I guess you know the story of our present tannin supplies.

(over)

EISENHOWER:

As I understand it, the chestnut tree furnishes our main supply of tannin. And, of course, the blight has about wiped out the chestnut.

SKINNER:

Well, the dead chestnut trees and stumps will provide tannin for some 10 or 15 years. But, unless the chemists and plant men find a new supply, we will have to import our tannin.

Our chemists saw the shortage coming. For several years they have been working diligently to find new materials. They have worked in particular on hemlock bark from the forests of the Northwest.

EISENHOWER:

At present, the pulpwood companies pay to have the hemlock bark hauled away as waste, don't they?

SKINNER:

Yes, and that bark is rich in tannin. We have finally found successful methods to extract the tannin; and have discovered ways to cut the cost of extraction. Very soon, we hope to try out our processes and methods in a demonstration plant. We will have a chance to further check our ideas and to prove the practicability of hemlock tannin to the tannin industry.

EISENHOWER:

Tannin from hemlock bark seems to be something near a reality. But, even so, aren't you already beginning to hunt for still other sources of tannin?

SKINNER:

Well, we're investigating the saw-palmetto of the Gulf States. The palmetto overruns the place; it's a pest. But it contains a high percentage of tannin. Maybe it will provide another commercial source.

EISENHOWER:

You chemists certainly look a long way ahead.

SKINNER:

We <u>have</u> to.

And we work even a great deal further ahead than our work on the palmetto might indicate.

If you walk down the halls past our chemical laboratories, you will see in room after room, a great deal of scientific equipment. Those are the chemist's tools. You ask him what he is working on. He may tell you he is putting the

finishing touches on hemlock tannin. But, just as likely, he may describe some very complicated, technical chemical experiment. Sometimes, the work may sound trivial or impractical. "What's the value of it, anyway? But you remember what Michael Faraday told the British scientists.

EISENHOWER:

You mean about his work on the electrical magnet.

SKINNER:

Yes. Faraday put an armature, or piece of metal, before a horseshoe magnet. By reversing the poles of the magnet, he found he could make the armature revolve. When he demonstrated his work before the Royal Society of London, one learned scientist said rather cynically, "But what use is it?" Faraday replied: "What use is a baby?"

EISENHOWER:

Faraday probably had no idea of the importance of his discovery. But, as a result of his work, we now have the electric motor, and the electric motor runs our trains, and street cars, and elevators, and factories.

SKINNER:

Our work on new uses for farm products goes through the same stages as the electric motor. We make an apparently unimportant discovery. We add to it year by year. We find a practical application. Eventually, we announce a new product - casein, from milk, or textile sizing from sweet potatoes.

EISENHOWER:

But it all takes time.

SKINNER:

Yes, often a long time. We talk about paper from straw or cornstalks as something new. But I have a catalogue printed back in 1862 on paper made in part from cornstalk. At about the same time, some pretty good paper was made from flax straw.

In our work, we often have to overcome technical problems; we run into competition with other products. But, some day, those products, just as hemlock tannin, find a use.

But don't expect our work with corncobs, and other waste products to bring big results right away. We have found a profitable use for <u>one</u> product of the corncob -- <u>furfural</u>. We'll find others. But don't plant all the crop land in the country to corn, or cotton, or sugarcane, and expect the chemists to find ways to use all of those products. The chemist just can't work that fast.

EISENHOWER:

Well, thank you, Doctor Skinner, for this interesting report on possible uses for farm products and waste products.

And, goodbye, everyone, until this same time next Tuesday.

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HOW TO SELECT EGG LAYERS

A radio interview between M. S. Eisenhower, Director of Information, and Dr. M. A. Jull, Bureau of Animal Industry, in the Department of Agriculture period, National Farm and Home Hour, Tuesday, May 28, 1935.

---oOo---

ANNOUNCER:

Back in Washington--
---And all set for M. S. Eisenhower, Director of Information, with another of his weekly chats on agricultural science and research. We've had a nervous moment or two for fear he wouldn't arrive, but everything's all right now-- Here he comes into the studio--

EISENHOWER:

(In distance) Hello, Bill. Sorry I'm late.
(Close to microphone) But what's all this contraption here?

ANNOUNCER:

Well, where are your chickens?

EISENHOWER:

Chickens?

ANNOUNCER:

Sure! Last week, you talked about corncobs; you brought along a big cob to show us. When we saw you scheduled to talk today about poultry, we naturally expected you to bring along some chickens. So, we fixed up this roost for them in front of the microphone.

EISENHOWER:

Oh-- so, this thing is a roost?

ANNOUNCER:

Well, the only thing we had here in the studio was this wire. Somebody suggested we string up a wire roost. But I said you can't expect a big fat hen to stick to this slippery wire. To settle the argument, we wired Everett Mitchell, at Chicago, expert on all things agricultural. Everett wires back, "Didn't you ever live on a farm? Don't you know anything about chickens? Tie sandpaper under their toes." So, we went ahead and---

EISENHOWER:

Well, with such a roost as this wire contraption, I'm afraid you'd never make a go at poultry farming.

(over)

But anyway, thanks for your efforts, Bill Coyle, and hello, everyone.

I didn't bring along any chickens today. But I did think the many poultry raisers in the radio audience would like to hear about a very interesting piece of poultry research - a bit of research of great practical importance to the poultryman.

Now, in the poultry business, just as in any other business, you make an investment. You put money into each hen - into feed for each hen - into poultry houses and equipment for each hen, and so on. If you are to make a profit from your investment, the hen must turn out enough eggs to pay for her keep, plus a margin.

As I recall the 1930 census figures, the hens in this country laid in a year an average of only about 90 eggs each. Ninety is far too low. Successful poultrymen figure they should get an average of 150 eggs a year from their flocks to make a fair profit.

Now, how can you make the hen lay nearly twice as many eggs as at present? Naturally, such things as better feeding will help. But you can't make a silk purse out of a sow's ear. The solution is, Select and keep only good layers.

Now that brings up an interesting question. Can you tell a good layer by her looks? In other words, Do we have definite egg-laying types? That question has puzzled poultrymen for years. Finally, Dr. M. A. Jull, and his co-workers in the poultry division of the Bureau of Animal Industry, found the answer. But I'll leave the story to Doctor Jull.

JULL:

Thank you, Mr. Eisenhower-- and greetings, Farm and Home Hour friends.

EISENHOWER:

Doctor Jull, let's go back a bit. Let's pick up the threads of some of the earlier ideas about egg-laying types.

JULL:

Well, Mr. Eisenhower, you'll have to go back a long way. I expect folks have been trying ever since the earliest days of domesticated poultry to discover standards to judge a hen's egg-laying ability.

EISENHOWER:

I didn't mean to go back quite that far. I simply meant to review some of the more recent ideas. For example, let's take the idea of the flat, or slab-sided hen. In the past, a great many folks have looked upon a flat, angular body as a sure sign of a good layer, haven't they?

JULL:

Well, yes. At one time, many of us in the poultry business judged a hen's ability to lay eggs by the length and breadth of her back, and by the depth of her body, and so on. We thought a good layer should have flat shanks, and a generally flat body.

EISENHOWER:

In other words, you tried to judge laying hens by the same standards as dairymen tried to judge dairy cows.

JULL:

Exactly. Dairymen used to think a good milk cow must have a kind of flat, angular body.

EISENHOWER:

Some poultrymen also took the shape of the hen's head into account, didn't they?

JULL:

Yes, that was one of several further points. Some poultrymen thought a natural-born good layer had a long, broad-- but rather flat -- head. Others thought the size and brightness of the eye might have some influence. Still others even tried to discover some relation between a hen's ability to lay eggs and her general alertness-- or, you might say, her intelligence.

EISENHOWER:

But, you doubted the reliability of those standards.

JULL:

Well, those ideas about egg-laying types of poultry simply didn't work out in actual practice. In our work at the experimental poultry farm, we would pick out a hen with all the supposed earmarks of a good layer. But, when we kept records on the hen's actual production, we found we had made some big mistakes. The birds with slab-sides, and so on, didn't always turn out to be such good layers after all.

EISENHOWER:

Well, you'll remember that the dairy industry had much the same experience. The dairy people began to pick to pieces the former theories about the angular-type dairy cow.

JULL:

Yes.

EISENHOWER:

And, as I recall, even the psychologists joined in. A few years ago a psychologist at the University of Minnesota investigated the relation between the size and shape of a man's head and his intelligence. As you know, Doctor, they found no connection whatsoever. A very intelligent man might have a small head, with a receding forehead. On the other hand, a man of low mentality might have a large head and protruding forehead-- the kind of head often thought of as a sign of high intelligence.

JULL:

Well, at about that time a great many scientists in various fields began to question our previous notions about the relation of body characteristics, or type of head, to egg production, or milk production, or intelligence, or what have you.

EISENHOWER:

So you thought you would dig into the actual facts.

JULL:

Yes. Quinn, and some of the rest of us in the Poultry Division said, "Let's keep very careful check on the egg production of some of our chickens out at the farm. Then let's measure their bodies and heads very carefully to see if we can find any connection between the body type and ability to lay eggs."

EISENHOWER:

You measured the birds by two or three different methods, didn't you?

JULL:

Yes. First, we measured the length and width of back, and so on, of the chickens-- alive, and with their feathers on.

EISENHOWER:

But, of course, you didn't find that method very accurate.

JULL:

Not as accurate as we wanted.

So, we made two further measurements. We measured the carcasses of the hens. And as a final check, we boiled all the meat from the bones and measured the bones or skeletons.

EISENHOWER:

And, after all your checking, and re-checking, you still found no connection between the shape of the hen's body and the number of eggs she lays.

JULL:

None at all.

EISENHOWER:

And of course the dairy people got about the same results. When they began to check into some of the former notions about the round beef-type cow, and the angular milk- or dairy-type cow, they found no basis for such ideas. The beef cow and the dairy cow have much the same body structure. At least, you can't single out any definite body type for the beef cow as opposed to the dairy cow.

JULL:

No, you can not. A hen's or cow's ability to produce eggs or milk depends on her breeding.

EISENHOWER:

In other words, you must judge poultry by their breeding, instead of by their looks. I wonder if you can give the practical poultryman some simple, yet reliable, rules to follow.

JULL:

Well, in the light of our present knowledge, we recognize four sure signs of a good layer. First, the good layer matures early; that is, she begins to lay early in life -- second, she lays at a good rate -- third, she shows very little broodiness -- and fourth, she lays persistently; in other words, she stays on the job.

EISENHOWER:

Let's take up those points one by one, Doctor Jull. First, you say early maturity is one of the signs of a good layer.

JULL:

Yes. At the same time I warn you to watch out for the abnormally early, or premature, pullet. Now and then, a pullet begins to lay small eggs before she is fully developed. But, in general, if a hen begins to lay early, she shows one important earmark of ability to lay well.

EISENHOWER:

What scientific explanation do you offer?

JULL:

Well, of course, hens inherit their ability to lay eggs. We've simply noticed that the hen which inherits the ability to lay early also inherits the ability to lay well the first year.

EISENHOWER:

I suppose, too, the more fact a hen begins to lay early means she has a longer laying life ahead of her.

JULL:

Yes. But, of course, you must make sure that the early layer continues to lay well.

EISENHOWER:

That leads to your second point: rate of laying.

JULL:

Exactly. In our work at the poultry farm, we find a very direct relationship between the rate at which a hen lays and the total number of eggs she lays the first year. The more eggs a hen laid up to the first of March, the more she laid during the rest of the season.

EISENHOWER:

So, a good layer begins early and lays at a good rate the first few months.

Now, I think your third point was broodiness.

JULL:

Yes. A good layer must be free from broodiness.

EISENHOWER:

Well, I guess every poultryman appreciates the reason for that requirement. When a hen broods, or "sets," she simply doesn't lay.

JULL:

That's right. Even though you break up a broody hen right away, she is off of her egg-laying job on the average of two weeks.

EISENHOWER:

The broodiness tends to run by families, or in the blood, doesn't it?

JULL:

Yes, it does. Just shutting up the broody hen in a coop isn't enough. The hen inherits her broodiness. To get rid of broodiness, you simply have to keep your eye open for broody hens and take them out of the flock. That is, of course, take out any hens you don't actually need for hatching purposes.

EISENHOWER:

You have kept actual records on broody and non-broody flocks, haven't you?

JULL:

We have. In our experimental flocks of White Leghorns, the broody hens laid only 153 eggs against 194 eggs for the non-broody birds. With Rhode Island Reds, the record averaged 180 eggs for the broody hens and 205 eggs for the non-broody.

EISENHOWER:

Well, a margin of 25 to 40 eggs a year from the non-broody hens certainly offers the poultryman a good argument to get rid of his broody hens.

JULL:

And, as the final point, we say, "Select the persistent layers."

EISENHOWER:

That point should be clear enough. Simply select the hens which stay right on the job.

JULL:

In particular, select the hens which lay well during August and September of their first year. At our experimental farm, we found those hens turn out to be the best layers.

EISENHOWER:

Now, let's see, Doctor Jull. So far, we've warned poultrymen against trying to pick good layers by their looks. We've sketched the four main requirements for high egg producers. I understand you've gone a step farther. You've carried those principles on down to a chart with a series of one, two, three recommendations for the practical poultryman. I wonder if we shouldn't say a word about the chart?

JULL:

I think we should. As a matter of fact, I brought along with me this Farmers' Bulletin with the chart and general suggestions on how to select good layers.

EISENHOWER:

Oh yes. Farmers' Bulletin No. 1827, "Selecting Hens for Egg Production."

JULL:

Now, in this Farmers' Bulletin we do two things. First, we review the most recent facts on how to tell whether a hen is laying at any particular time.

EISENHOWER:

But, of course, we shouldn't confuse these signs with our former ideas about good layers and body types.

JULL:

No. The two are entirely different. In this bulletin we simply say, "You can pick up a hen and tell whether she is laying right now by the condition of her comb, and wattles, and vent, and beak and shanks, and so on." For example, if a hen is laying, her beak and shanks are bleached to a kind of light yellow, or whitish, color. Most poultrymen already know many of these points. But, of course, these various signs simply tell you the hen is, or is not, laying right now. They don't tell you whether the hen comes from a strain of early layers, or whether she lays at a good rate, or whether she is free from broodiness, or whether she lays persistently. To learn whether or not a hen is actually a good layer, you must keep records on those four points.

EISENHOWER:

And in this bulletin you have outlined a simple system of records and selection for the practical poultryman.

JULL:

Yes. In our experimental work, we keep trapnest records of our hens. But the trapnest plan takes too much work for the practical poultryman. So, we have worked out a chart, or calendar, of simple steps for the poultryman to take month by month. We suggest that he mark the early layers with red bands - the hens which lay at a good rate, that is, birds which have well-bleached beaks and shanks most of the year, with white bands, - and the persistent layers, or late molters, with blue bands. He marks the broody birds with <u>black</u> bands.

EISENHOWER:

Under that system, the good layers carry red, white, and blue bands.

JULL:

That's the idea. And in this chart, we tell the poultryman which birds to mark, and how, and when.

EISENHOWER:

Let's see. This chart tells the poultryman what to do month by month. May is about over. What does the chart tell the poultryman to do during the month of June?

JULL:

For June, the chart says, "Market the early molters to cut down feed costs. Try to keep your flock at a 50 percent production during the summer months. (That is, keep the hens to an average of at least an egg every other day.) And begin annual selection this month."

EISENHOWER:

And then the poultryman turns from the chart to the bulletin to get detailed suggestions on how to weed out the early molters, and poor layers.

JULL:

That's right.

EISENHOWER:

In short, you offer the poultryman a very simple, yet practical, plan to select hens for high egg production.

Well, thank you very much, Doctor Jull.

I probably should explain that you can get Farmers' Bulletin No. 1727 -- 1-7-2-7 -- on "Selecting Hens for Egg Production" from the Department of Agriculture as long as our small free supply lasts, or from the Government Printing Office in Washington, D.C. The bulletin sells for five cents a copy.

And now, goodbye, until this same time next week.

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THE FORESTRY CLUB PROGRAM DEVELOPS AN APPRECIATION OF THE OUT-OF-DOORS

A radio talk by Wakelin McNeal, Assistant State Club Leader, Madison, Wisconsin, delivered in the National 4-H Club radio program, June 1, 1935, and broadcast by a network of 59 associate NBC radio stations.

--ooOOoo--

The destruction of our forests and our once abundant wild life resources, constitutes one of the sorriest chapters in our national history. It is common knowledge to almost every boy and girl. The inroads of civilization; unwise cutting of our timber; forest and ground fires; cutting of trees and shrubs from hillsides; applying flat-land methods of agriculture to our slopes; grazing woodlots; removal of shrubbery from roadsides; draining water-retaining marshes; thoughtless killing of predatory birds and animals; these and many other practices have destroyed much of the best and finest of our native wild plants and wild life, destroyed a heritage of joy and beauty for youth; and presented the menace of wind and water erosion.

All this is in the past. We have the knowledge, the facilities and the funds necessary for restoration, if we have the conviction to set them to work. Such a conviction rests in education, and such education, like all education, should begin with youth. The children of today will tomorrow be the custodians of our nation's resources. Time will soon decree that they take over the management of affairs, and it is important that they have a knowledge and conviction as to how these resources must be handled. Any policy that hopes to build up a sound and abiding conviction in youth must, without fail, develop an appreciation in youth of forests and forest-craft along with the actual work of growing the forests themselves. This can be done only by giving youth a chance to help. It is a form of education best learned by participation. In this way we can develop in our youth a love for and a knowledge of forests and forest life by having them help build up the forests they will inherit. An active interest on the part of youth in building up the forest resources is the truest -- surest -- most abiding foundation for a sane enjoyment of forests and all that forests contributes to health, happiness and prosperity. It is the old philosophy, you know, that boys and girls who live in homes where no sacrifices are demanded of them, or eat from gardens they did not help plant, or receive a heritage they did not work to build up, will never have the basis of a sane and lasting enjoyment. Where there is no endeavor there can be no enduring attachments. Let's have club members and trees, which they are inspired to plant, grow up together,

If 4-H club work has demonstrated anything above all else, it has shown that farm youth can assume and meet responsibilities in a surprisingly efficient manner, and find a joy and pride in the accomplishments. The time is ripe to use this same enthusiasm and pride in accomplishment by calling upon farm youth to help in the conservation of soil, forests, the beauty of landscapes, and of our wild life. Club members who acquire a knowledge of and a love for birds and animals, trees and flowers, and their connection with agriculture, have discovered an important element of a contented life on the farm. The trees, the flowers, the birds and the brooks

(over)

are more full of wonders than all of the books. The conservation of forests and wild life is so full of worthwhile opportunities for enjoyment; is so important to abundant rural living, that it seems almost imperative that it be made a part of the activities of every club. Club members, in fact all youth, are just naturally interested in forests. Their sense of justice can easily be aroused against careless and illegal practices. They readily condemn practices that destroy their own heritage. They eagerly accept opportunities to render service in protecting and propagating forests and forest life. The work strikes a responsive chord when played upon by a sympathetic leader. Many states are offering club members this chance for lasting service and wholesome enjoyment that the outdoors provides.

I'll mention briefly a few of the activities:

1. Make some phase of conservation a subject for discussion or demonstration at each club meeting.

2. Learn the biology behind game laws; carry on a campaign to obey all game laws and flower picking laws.

3. Learn to identify birds by plumage, flight and song. Learn their feeding, nesting, migratory habits, and their value to agriculture.

4. Attract birds about the home by erecting bird houses, baths, feeding places; planting berry-bearing shrubs for food and cover.

5. Establish a trout habitat along a definite portion of a stream.

6. Secure a tract of land for a school, community, or club forest.

7. Secure consent of a farmer to improve his woodlot as a bird and game refuge.

8. Rear game birds, release them, and provide for their winter care.

9. Protect birds from cats. Destroy all cats not needed about the barn.

10. Learn to know the wild flowers; the laws protecting them; which ones can be transplanted into a wild flower garden; which ones have medicinal value.

11. Learn to know the friends and foes among the insects; the life history of an insect; learn how to preserve for display our attractive moths and butterflies.

12. Stop erosion on slopes by correct methods of farming; building of dams; planting of trees and shrubs.

While driving to the office one day early this spring I noticed a flock of geese flying northward in their beautiful characteristic triangular formation. I pulled up to the curbing where a boy stood gazing in wonderment and admiration. After the flock had disappeared into the blue of the distance, I started that poem of faith -

He who from zone to zone,
Guides through the boundless sky
Thy certain flight --

At this point, the boy picked up the lines and continued --

In the long path that I must tread alone
Will guide my steps aright.

I found that this lad had an English teacher who made poetry live by relating it to life. That boy is living more abundantly because a person entered his life. This is our supreme privilege and satisfaction as leaders.

"It doesn't cost much, and it doesn't take long
To get your ear turned to the mighty world's song.
It leaves in its train no unpleasant regret
And the farther you go, the better it gets!"

Good-bye and lots of joy!

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HOME-TALENT ENTERTAINMENT FOR COMMUNITY FAIRS

A radio talk by Miss Betty Eckhardt, Recreation Specialist, Oglebay Park, Wheeling, West Virginia, delivered in the Home Demonstration Radio Hour, June 5, 1935, and broadcast by a network of 50 associate NBC radio stations.

--ooOoo--

If you want to have a crowd at your fair - "Rain or shine" - try a home talent-entertainment program! Many of the fair officials in West Virginia feel that an investment in home talent entertainment is cheaper than rain insurance!

One of the most popular home talent fairs in West Virginia is held at the State Four-H Camp at Jackson's Mill. They call it a Country Life-Jubilee -- and it lives up to its name! Fifteen counties in this region carry on in their own neighborhoods, a well-rounded recreation program of music, dramatics, and sports, all during the year. They bring their best programs and winning teams to the Jubilee along with the finest farm and home products. This fair gives a well-balanced picture of the very best in rural community life.

At Oglebay Park, near Wheeling, six counties join forces every September and hold an Autumn Festival. As part of a great harvest pageant they exhibit their prize products in a unique and beautiful way. The finest Four-H boys and girls in the county make up the processional of gift bearers before the harvest queen. They wear greek costumes of purple, and carry trays and baskets of fruits, vegetables and flowers. A processional of gift bearers is a fine way to exhibit outstanding boys and girls, and it also gives an opportunity to show the superb beauty in form and color of farm products.

About the hardest test I have ever seen of home talent entertainment was down in Pocahontas County. The fair board invited each district to be host for a day and provide the free acts in front of the grandstand. Instead of offering prizes they divided the money equally to help cover expenses. In order to make sure that each event would be a first-class performance the board employed a trained recreation specialist to give advice to each community.

For several months before the fair people all over the county worked on music, plays, pageants and dances, and "practiced up" on baseball and barnyard golf. When the time for the fair finally arrived the weather man lined up with the skeptics! It rained all day Monday and by Tuesday morning the race track was flooded! This meant no races! The fair directors looked more gloomy than the weather.

Huntersville district was scheduled to provide entertainment for the first day and sure enough they came; and much to the astonishment of the fair board, cars started coming in from all over the county! The barnyard golf tournament started right off on the dryest place they could find. Baseball and soccer went on in spite of the mud. The tent theatre with its one-act plays made an excellent side show. Fifty fiddlers and jiggers, ranging in age from 13 to 82 came to the grand stand for the fiddlers contest. It rained at least once a day during the entire week - until finally the water in front of the grand stand measured 10 inches! They even had to use a boat to get people across to the stage where they put on an old-time singing school - a square dance festival - a circus-day parade and an historical pageant.

(over)

When the directors counted up the gate recipts at the end of the week they were astonished to find they had broken their best attendance record! The thing that pleased them more, however, was the enthusiasm of the people. Many of them stopped by the office to offer their congratulations and say Goodbye for another year. Instead of the usual remark, "Well, you had a nice fair," they said with new enthusiasm, "Didn't we have a fine fair this year? I think it's the best one we ever had!"

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HOME CRAFTS THAT BRING CHARM AND CASH TO THE HOME

A radio talk by Miss Helen Cullens, District Home Demonstration Agent, Nashville, Tennessee, delivered in the Home Demonstration Radio Hour, June 5, 1935, and broadcast by a network of 50 associate NBC radio stations.

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Home crafts used to be called "Fire-side Arts," because back in colonial times much of the work was done during the winter by the fire-side, when the family was not busy with other farm household work.

The same impulse that motivates an artist to create a beautiful picture on canvas, motivates artisans with other tools to create objects of beauty and utility. It is the expression of the instinct for beauty and the desire to have objects that add charm to their home and greater satisfaction in life. Satisfaction and charm in a home, is the result of what one puts into it in their own efforts. To the family there is a story, or memory, in every stitch that is put in a home-made braided rug, or other home-made furnishing. It is this personal history of the furnishings in a home that gives them charm and satisfaction -- a charm and satisfaction that is never experienced from purchased furnishings.

Self-sustenance, when people lived remote from manufacturing centers, required that people make many of their household furnishings, and in many homes these Home Crafts were developed to a fine art -- in the creation of furnishings that were useful and beautiful in design. Many of these furnishings were not only beautiful in design on account of their originality in pattern, but exceedingly durable.

With the progress of civilization Home Crafts were rapidly becoming a lost art. These crafts continued to be practiced only in isolated rural communities, and particularly mountain communities where the income from farms is small, or the difficulties of getting to town so great, that infrequent trips made dependence on home hand crafts necessary.

This is well illustrated in a small mountain community north of Chattanooga, Tennessee, known as Apison, and another one north of Knoxville, known as Asbury. In Apison for many years the farm women made lovely braided rugs for use in their homes. Some years ago the county agent and home demonstration agent in Hamilton County encouraged a community fair in connection with the school. Many braided rugs were exhibited at the fair, where they were much admired. Later people in this community were persuaded to make a community exhibit at the Chattanooga Interstate Fair. Many rugs were exhibited. The rugs were admired by city women, and many purchased. It became apparent there was a market for these rugs, and their beauty and durability were appreciated.

Similar experiences occurred with farm women in other community centers, who spent their leisure time in handicraft work. It became apparent that such products in addition to being useful for the makers home, might, also, be a source of income.

The Agricultural Extension Service of the University of Tennessee and the U. S. Department of Agriculture, in its educational work with rural women, are encouraging the preservation, and still greater development of these arts among rural women.

(over)

Following the experience of the Apison farm women at the Chattanooga Fair in the sale of rugs, considerable encouragement has been given to these women, to develop the handcraft industry in this community, both in pattern design, blending color and standardizing the products. Also, they have been taught to make hooked rugs. There are a wide range of designs, copies of antiques, tapestries, pastoral scenes, Mother Goose designs for children, flowers, -- to mention a few.

Rugs from this community are selling to private trade all over the United States and are bringing to the farm women in this community over $4,000.00 a year.

Home Crafts that add charm and cash include many different types of work. At several mountain schools in the Southern Appalachians students are taught home crafts and are earning part, or all, of their expenses weaving household linens, table runners, pillows, rugs, mats, furniture, coverlets and other products. These products are sold all over the United States.

In another isolated mountain community is a man who makes home-made furniture of colonial type and has such a demand that he has several men working for him in a little shop close to his home. He has harnessed a little stream to generate the electricity to run his simple machinery. There is a demand for more furniture than he can make.

A farm woman in another community is earning money putting shuck seats in stools and chairs. Many other farm women use the same method to restore the utility of such chairs and their attractiveness in the home.

Similarly many other articles are being made, depending on the needs of the home and the creative art of the farm woman. There has been great progress in reviving the Homecraft arts among farm women. These women are enthusiastic in their work and happy with the improvements in their own homes and have the artist's satisfaction in adding beauty and charm to the homes of others that buy their products.

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U.S. DEPARTMENT OF AGRICULTURE

ADDING TO THE INCOME BY MARKETING
FARM PRODUCTS

A radio talk by Mrs. George Hempel, farm woman, Thomasboro, Illinois, delivered in the Home Demonstration Radio Hour, June 5, 1935, and broadcast by a network of 49 associate NBC radio stations.

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Farm and home produce marketed by farm women is reaching an imposing figure in spite of a generally decreased consumer purchasing power.

One of the popular methods of selling this produce is through markets such as we farm women have in our country. These range from the small type similar to a church food sale, to the ones occupying an entire floor space in a large building. The one in Champaign, Illinois, where I sell my products, occupies an entire building 44 x 70, half of which is devoted to individual booths, where farm women can sell their excess food products. This side is open for business only on Saturday. A cafeteria occupies the other half of the building and is open each day for the noon meal and for supper Saturday evening; this is also operated by farm women.

I have a booth in the market where I sell dressed chickens, fresh and cured meats, butter, whipping cream, eggs, cottage cheese, fresh and canned vegetables, jellies, preserves, canned fruit, bread, rolls, coffee cake, angel food cake and such cooked food as baked beans, chicken and noodles.

Here are a few of our prices: Baked beans 15¢ a pint, chicken and noodles 25¢, cottage cheese mixed with cream 18¢, large angel food cakes 80¢, and bread 9¢ a pound. Cut flowers not only sell well but make the market look more attractive.

You may be interested to know that a typical market day in the winter, when I sold fresh meat, averaged about $35. I have quite a number of customers who started buying from me seven and one-half years ago when our women started the market.

In addition to the market, I am one of the contributors to the coffee shoppe or cafeteria. This means that every Wednesday three other women and myself are responsible for bringing all the food which is served that noon. The chairman for each day plans the menu and divides it so we know exactly what to bring. For instance, last Wednesday, I brought for my part of the dinner, meat loaf, steak, fried ham, creamed potatoes with new peas, fried potatoes, corn, kraut, asparagus, buttered cabbage, buttered carrots, three kinds of salads, three kinds of pies, rhubarb sauce, apple dumplings, cake and the milk to drink. We served 129 people that noon, so you can get some idea of the amount of food we four women brought. Our gross sales that day were $45.00.

(over)

We prepare all of this food that is possible in our homes, then finish up on our gas stoves and oven at the coffee shoppe. The fact that our business keeps up is no doubt due to the fact that all our food is home cooked. We even bake all our bread and rolls and have nothing but homemade ice cream (made with real cream.) Business people seem to enjoy our food and we have had some of the same customers since we started.

It is not unusual for us to have around 500 customers for the two meals on Saturday.

Last year our market and coffee shoppe did a $21,000 business. How much of this is profit for the farm women is difficult to say as the cost of producing the food and the cost of labor in preparing it would have to be subtracted before this could be determined. It is difficult to say how valuable a woman's time is unless one knows what she would have used the time for otherwise. Individual receipts vary from as low as $3.00 to as high as $35.00 or even more, depending upon the type and quantity of food prepared for sale.

This money is used for various purposes, such as clothing, household necessities, education, and recreation. For instance, I am using the money I receive to send our daughter through high school. I am also paying my household helper, buying all groceries for a family of five and any furnishings that are bought for the home. I have paid for an electric range and many other labor saving devices from money I received from the market.

Another woman in our market whose husband has been an invalid for several years is the sole support of her family of four, through the sales she makes each week. In addition, she has put two girls through school so that they are now making their own living.

While much labor is involved in taking care of this business, most of us enjoy it because we make many new friends as well as add to our income.

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THE GARDEN AND HOUSEHOLD CALENDAR

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A radio discussion among Miss Ruth Van Deman, Bureau of Home Economics, George M. Darrow and W. R. Beattie, Bureau of Plant Industry, and Morse Salisbury, Radio Service, delivered in the Department of Agriculture Period of the National Farm and Home Hour, broadcast by a network of 50 associate NBC radio stations, Thursday, June 6, 1935.

--ooOoo--

MR. SALISBURY:

About a year ago we had George M. Darrow, the originator and introducer of new varieties of strawberries, on our program, and with the aid of Miss Van Deman and her associates of the Bureau of Home Economics, we had a regular strawberry festival. Mr. Baukage, the voice of the United States News, took part in that celebration. And Everett Mitchell and the boys out at Chicago have never quite forgiven us for the risk of drowning we put them to, as their mouths watered while we ate strawberry shortcake. There may still be a division of opinion as to which is the best, genuine biscuit-dough shortcake or just ordinary sponge cake with strawberries over it. But I have been much encouraged by the strong support for biscuit shortcake that has come surging up from this radio audience. Well, to the business of the day. A year has gone by and we again have here in the studio for another strawberry round-up, Mr. Darrow, Miss Van Deman, and Mr. Beattie.

BEATTIE:

Thank you, Mr. Salisbury, and hello folks. Well, as Morse has said the gang's all here and so are the strawberries. The first thing I want to ask Mr. Darrow is how come the berries are so large this year. Those Fairfax are fully twice the size of the ones you brought in last year.

DARROW:

Well, Beattie, you see we had a good growing season in 1933. That gave us a dense stand of plants for the 1934 crop and as a result the berries were not so good last year. Then last summer we had less favorable growing conditions. The set of new plants was a little thin and that gave the plants that did survive plenty of room. In our experiments we've found that the highest yields and also the best berries are produced when the plants are spaced at least 8 to 10 inches apart. In addition, this spring has been ideal for strawberries here around Washington and the fruit has made a remarkable growth.

BEATTIE:

So conditions beginning two years back really account for this year's big berries.

DARROW:

Yes. Then of course these new varieties like Fairfax, and Dorsett, and Blakemore are very vigorous and produce large berries even when conditions are only fair.

BEATTIE:

Miss Van Deman, you saw the berries in Mr. Darrow's experimental strawberry patch at Beltsville yesterday, what do you think of them?

(over)

VAN DEMAN:

Mr. Beattie, that's what I'd call a rhetorical question, pure and simple. You know what I think about Mr. Darrow's berries. I can't imagine strawberries bigger and more beautiful. They're a dream come true. As a youngster I used to pick strawberries on the Eastern Shore of Virginia at a cent a quart, I think the pay was. Sometimes it took a good many berries to make one of those quarts, and the sun was mighty hot on the back. Mr. Darrow, if I were a little girl again and turned loose in your strawberry patch, I believe I could get rich quick.

DARROW:

Well, it isn't only size we are working for, you know.

VAN DEMAN:

No, I know it isn't. If I remember right you said you selected Blakemore especially for its firm texture and tart flavor.

DARROW:

Yes, when we selected the Blakemore we were trying to get a firm, bright-colored, tart berry for making preserves. But because of its excellent carrying quality, it has become the leading commercial variety for a large portion of the South. It has replaced the older varieties.

BEATTIE:

You say the older varieties - what do you mean by the older varieties?

DARROW:

I mean, taking the country as a whole during the past 15 or 20 years, there have been about six really great strawberry varieties. These are Missionary (Virginia 1900), Klondike (Louisiana 1896), Aroma (Kansas 1889), Marshall (Massachusetts 1890), Dunlap (Illinois 1890), and Howard 17 or Premier, (Massachusetts 1918). These are the varieties that have constituted about ninety percent of the commercial production. All of these have been, and still are, leading varieties for certain sections of the country, but all have their weaknesses.

BEATTIE:

What, for example?

DARROW:

Well, a fault of one variety is a yellowing of the foliage. Others gradually lose their vigor.

SALISBURY:

Mr. Darrow, how about your new varieties? No diseases, no trouble to grow the plants, large berries, big crops? All about perfect?

DARROW:

No, nothing is ever so perfect as that in this world, not even one of my new strawberries. Dorsett, which is one of our best, has this fault: Under favorable growing conditions such as we often have in the Eastern States, it forms to dense a stand of plants, and the berries are smaller than desirable. But in the Middle West where the rainfall oftentimes is not so abundant during the season when the plants are growing, Dorsett gives a good account of itself. Fairfax, on the other hand, may not produce enough plants. For that reason, it is adapted to the Eastern sections where the summer rainfall is reasonably abundant. Even Blakemore seems to have a few faults.

SALISBURY:

How do you set about to combine specific characters in a new variety?

DARROW:

By first selecting varieties that contain the desired characters for use as parents. Frequently we consider these characters as far back as the grandparents. Then after we select the varieties and good healthy plants of those varieties, we make the crosses and produce seed. From this seed we grow thousands of little plants. We keep each of these seedlings by itself for two to three years, or until it fruits, in order to see if it measures up to the ideal that we are striving for.

VAN DEMAN:

I noticed rows and rows of seedlings in your experimental patch yesterday.

DARROW:

Yes, when we find that a seedling shows real promise we grow more stock of it and give it a field trial. The ones that show no promise after two or three years we discard. We are never in a hurry though to discard any of these crosses. They may not show what is in them until they have been tested several times and in several regions.

BEATTIE:

Mr. Darrow, you say that these new varieties are the result of crosses made after a careful selection of the parents. But what is the ancestry of our cultivated strawberries? Where did the parent stock come from?

DARROW:

From two sources. One is the wild American species, Fragaria Virginiana, or meadow strawberry of the Eastern States, which grows from Hudson Bay to Georgia. The other is Chiloensis, the beach strawberry of Chili and of our Pacific Coast. It is seldom found more than a mile from the shore.

VAN DEMAN:

How did these two species become crossed?

DARROW:

That's a very interesting story going back to the days of the early explorers. They were impressed by the wild strawberries they found growing over here in the New World. They took plants back home with them to set out in European gardens. Some of these plants were from North America, some from South America, and the two kinds crossed. The berries from some of those crosses were exceptionally large and fine flavored and the plants very vigorous. Many of these characteristics came from the beach berry of Chili. The gardeners in Europe began selecting and propagating from the hybrids. Then as colonists came to this country to make their homes here, they brought plants of these cultivated berries.

VAN DEMAN:

So the New World gave the strawberry to the Old World, and the Old World improved on it and gave it back to the New World.

DARROW:

Yes. That's the way of it, but the breeders in this country have made a great deal more improvement.

BEATTIE:

To go back to that beach strawberry for a moment. Are you still using that stock in your breeding experiments?

DARROW:

Yes, Mr. Waldo, my associate out in Corvallis, Oregon, is using Chiloensis in crosses with our cultivated varieties in order to get vigorous, disease-resistant kinds.

VAN DEMAN:

Mr. Darrow, I'm curious to know how you select the names for your new strawberries.

DARROW:

Well, sometimes we name them for people who have done outstanding work in horticulture. Dorsett, for example, was named for P. H. Dorsett, a plant explorer for the Department of Agriculture. In the case of Fairfax, we were looking for an historical name and so we called it Fairfax in honor of the county in Virginia where Mt. Vernon, George Washington's estate is located. The Blakemore was named for Marcus Blakemore, a man who did a great deal to promote the strawberry preserving industry.

SALISBURY:

Darrow, a few moments ago you referred to Blakemore as one of the leading commercial varieties for the South. How do you find out whether your new varieties will stand up under commercial conditions?

DARROW:

We give them regular shipping tests. We pack them in crates in the usual way and ship them by express or parcel post from here to New York. Earlier in the season we shipped from North Carolina up here to Washington. Also we haul the berries long distances by truck. And in the laboratory we have what we call a jigger machine. It shakes up the berries the way they're shaken by the train or the truck in transit.

SALISBURY:

And when a variety passes all these as well as other tests, then you turn the stock over to nurserymen to propagate and sell to the growers?

DARROW:

Yes, anyone can get plants of Dorsett, and Fairfax, and Blakemore from a number of nurserymen who specialize on strawberry plants. We can give you a list of the firms having plants of the new varieties for sale.

BEATTIE:

Mr. Baukage, you look as though you wanted to get in on this discussion.

BAUKAGE:

Not into the discussion. Into the berries. I don't know anything about their ancestry. But are these strawberries good to eat?

VAN DEMAN:

Are they! You should have seen Mr. Darrow and Mr. Beattie eating them, sand and all, out in the field yesterday.

BEATTIE:

Now look here, Miss Van Deman. You did your share, and how about that quart of Dorsetts you took home?

VAN DEMAN:

I had five of them for my breakfast.

BAUKAGE:

Five? Do five strawberries make a breakfast?

VAN DEMAN:

Yes sir, five strawberries make a breakfast when 20 make a quart. There were exactly 20 Dorsetts in that quart.

BAUKAGE:

And I suppose there were five bites to the berry.

DARROW:

Here, Baukage, you and Salisbury were'nt out in the field. Sample them and tell us what you think. These dark red are Fairfax. When they grow very large, they have a tendency to become wedge shaped.

VAN DEMAN:

The shape of a knitting bag, a friend of mine said when she looked at them.

BAUKAGE:

Fairfax are all right, but I like the flavor of these Dorsetts.

BEATTIE:

I want you all to try some of these Blakemore preserves. Here, take a cracker and put one of these nice whole preserved berries on it.

VAN DEMAN:

Mrs. Beattie's sun preserves?

BEATTIE:

Yes, she made these this week from berries Mr. Darrow brought her to try out. She finds that Blakemore makes the finest sun preserves.

SALISBURY:

Nectar and ambrosia. Olympian food. The laurel wreath for Mrs. Beattie and the Blakemore. What a partnership!

Miss Van Deman can't you tell the world right here and now how to make strawberry sun preserves like these?

VAN DEMAN:

Yes, certainly. Nothing difficult about making strawberry sun preserves provided you can catch the strawberries and the sunshine. First you pick over your berries, sort out the largest and finest from the smaller ones. Then crush the smaller ones and cook them for about five minutes to draw out the juice. Strain off this juice and boil up with the sugar to make a rich sirup to pour over the big select berries.

SALISBURY:

How much sugar?

VAN DEMAN:

I was coming to that. If the berries are very sweet, 3/4 pound of sugar to 1 pound of the large selected berries will be enough. If the berries are quite tart, make it pound for pound, sugar and select berries. Of the strawberry juice

to use in the sirup, it takes a fourth to a half a cup of the juice to each pound or 3/4 pound of sugar, whichever proportion you are using.

SALISBURY:

Well, I understand about the sirup and I understand about the big berries. How how do you get the two together and produce sun preserves?

VAN DEMAN:

Easy enough. When the sirup boils up rich and thick, drop in the big select berries and let them simmer for about 3 minutes. Then lift out the berries and distribute them around on platters. Keep the sirup boiling for ten minutes longer, skim off the bubbles and scum, and pour this clear, rich red sirup over the berries on the platters. Cover the platters with window glass to keep off flies and dust and put the preserves in the hottest clearest sunshine you can find for 2 or 3 days. After each day's sunning, turn the berries over, and take the platters in each night. When the juice turns to jelly, put the preserves right into hot sterilized jars. Don't reheat the berries. Just seal them up airtight and store in a cool, dark place.

SALISBURY:

(Ad lib closing remarks)

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WHAT'S NEW IN FARM MACHINERY

A radio interview between M. S. Eisenhower, Director of Information, and S. H. McCrory, Chief of Bureau of Agricultural Engineering, in the Department of Agriculture period of the National Farm and Home Hour, Tuesday, June 11, 1935.

--ooOoo--

SALISBURY:

I'm glad to present to you again today, M. S. Eisenhower, Director of Information, to tell you more about some of the newer developments in the research work of the Department of Agriculture. All right, Milton--

EISENHOWER:

Thanks, Morse-- and hello, everyone.

In these Tuesday broadcasts, you have heard from the plant and animal breeders, the chemists, foresters, and soils men. I thought today you might like to hear about some of the new knowledge revealed by research on farm machinery and equipment.

As you know, the agricultural engineers in the Department, in the State agricultural colleges, and in commercial plants, are constantly devising new farm machinery.

These modern inventors follow in the footsteps of a long line of Americans whose ingenuity has lightened the labor of farmers. The record goes back into colonial times when pioneer inventors were at work improving the plow, and devising the grain cradle. It comes down through a rapidly lengthening list of men who, mechanically, have helped multiply the working power of the farm family. Today's engineers are the heirs and successors of those who gave us the steel moldboard plow, the grain reaper, the corn binder, the tractor, the combine, and all the host of other devices that have enabled the American farmer to produce more efficiently and at lower unit costs.

Now, one important group of engineers working at farm machinery problems is the staff of the Bureau of Agricultural Engineering in the Federal Department of Agriculture. Their leader, Mr. S. H. McCrory, is here with me today, and he's going to give us a report on their recent findings. Mr. McCrory.

McCRORY:

Thank you, Mr. Eisenhower, -- and good afternoon, everyone --

EISENHOWER:

Mr. McCrory, you said the other day that you would tell us in particular about a new planter recently developed by the agricultural engineers.

McCRORY:

Yes. We call it a variable depth planter.

(over)

EISENHOWER:

That's the planter that puts the seed at different depths in the row.

McCRORY:

That's right ... Suppose I tell you about the planter -- and then about a new self-aligning disc jointer for plows. I also might say a word about a new, inexpensive seed scarifier for the small farmer.

EISENHOWER:

We'd like to hear about all three developments.

McCRORY:

Shall we begin with the planter?

EISENHOWER:

All right . ... I believe you told me that you've tried this new planter mainly on cotton.

McCRORY:

Yes. We developed it primarily for cotton, but we think it also may work with other crops.

EISENHOWER:

You expect this new planter to be of practical value to the cotton farmer by cutting down some of his present losses - losses due to poor germination of seed when weather conditions are unfavorable.

McCRORY:

Yes, the new planter does tend to insure a uniform stand of cotton, regardless of weather conditions.

EISENHOWER:

And so saves the cotton farmer the time and expense of replanting.

McCRORY:

Exactly.

Every year, some growers have to replant cotton two, three or four times because they guess wrong on how deep to put the seed. That's not their fault; it's because they can't foresee the weather. Under some weather conditions shallow planted seed will germinate nicely; but deep planted seed will not germinate at all or will come up to a spotty stand.

Now, under other weather conditions, shallow planted seed won't do so well, but deep planted seed will do well enough. If a man makes a bad guess on the weath

he has to go to extra work and expense. J. W. Randolph, the man in charge of our cotton production machinery investigations at Auburn, Alabama, wondered if there wasn't some way to avoid this. He thought perhaps there was - if you could make a machine that would plant seed at different depths right along together in the same row.

EISENHOWER:

In other words, play safe. At least part of the seed would be likely to come up no matter what kind of weather you had.

McCRORY:

That's the idea.

EISENHOWER:

Well, I take it Randolph solved the problem, since you now have a variable depth planter.

McCRORY:

Yes, that's evidence that he solved the problem, all right. He did develop the planter. And in field trials, it turned out that cotton seed drilled at variable depths provided a good atand with one planting, no matter what the weather conditions -- of course, short of actual drought, or flood.

EISENHOWER:

Will you tell us how the variable depth planter works?

McCRORY:

I'll try. But it's pretty hard to explain a piece of machinery when you don't have the machine before your eyes. The essential difference between Randolph' planter and the ordinary cotton planter is this: The planting shoe of Randolph's machine bobs up and down as the wheel turns. Consequently, it drills the seed from 1/4 to about 2 inches deep, in a series of waves. The waves are about 18 inch long.

EISENHOWER:

But, under that plan, I should think you would have to plant a good deal more than the usual amount of seed.

McCRORY:

No. Just the same amount.

As you know, a cotton grower always plants considerably more seed than he expects to come up and grow.

EISENHOWER:

Have farmers tried out the new planter?

McCRORY:

Yes. Randolph lent his experimental machines to several growers around Auburn.

EISENHOWER:

What did they think of it?

McCRORY:

They were enthusiastic.

EISENHOWER:

Have you tried the planter anywhere except around Auburn?

McCRORY:

Oh, yes. In each of the past three years we've tried it out in eleven different localities under a wide range of conditions. That makes 33 tests. In 29 of the tests one planting with the new machine gave a good stand of cotton. In four of the tests it was necessary to replant.

EISENHOWER:

That certainly sounds like a good record. I should think the new planter would enable farmers to cut the cost of producing cotton.

McCRORY:

We think it will. That's why we tackled the problem. As a matter of fact, that's one of the main objects of research on machinery used in crop production - to help growers cut their costs.

EISENHOWER:

That's a point we've emphasized in these research reports - but getting back to the variable depth cotton planter - you say you think it also might work successfully with <u>other</u> crops.

McCRORY:

Possibly so. A man near York, Pennsylvania, has tried this planter on cantaloupes. Apparently, he got good results. But, of course, we can't say very much about possible results with other crops until after we make some experiments.

EISENHOWER:

I understand you obtained a public-service patent on the planter.

McCRORY:

Yes, A public employee developed this planter with public money, So, we have taken out a public-service patent to make the benefits available to the general public.

EISENHOWER:

That is, anybody can manufacture the variable depth planter, without paying royalties.

McCRORY:

Exactly.

EISENHOWER:

Well, so much for the planter. Next, let's hear a little bit about this new plow attachment the Department engineers developed.

McCRORY:

Well, as I said, this new plow attachment is what we call a self-aligning, or self-angling, disc jointer.

EISENHOWER:

Now, as I understand it, you think this new plow attachment may be useful to farmers generally. But you actually developed it to use in fighting the corn borer.

McCRORY:

That's true.

EISENHOWER:

Well, as I get it, a plow equipped with this new attachment turns under the cornstalks and other trash more completely and with less trouble than other plows.

McCRORY:

It has in the tests we have made up to now. You can easily see the value of such an attachment in fighting the corn borer. As you know, the borer spends the winter in corn stalks and other trash in the corn field. To control the borer, the farmer must plow under all stalks and trash before the borers come out in the spring.

EISENHOWER:

In other words, he must bury all trash so that if any borers come to the surface again, they can find no trash to hide in.

McCRORY:

Now, our problem was to develop machinery to turn under the stalks and trash without leaving pieces sticking out of the ground, or lying on top of the ground.

Suppose you are plowing with just <u>an ordinary</u> plow without any special attachments. You come to a corn stalk lying right across the row ahead of the plow.

EISENHOWER:

I think I get what you are driving at. Instead of turning under the stalks, the plow is apt to flip them over on top of the plowed ground.

McCRORY:

At least, that's the tendency.

EISENHOWER:

But what about the ordinary jointer and rolling coulter? I thought they were supposed to cut down through the trash and topsoil along the furrow border so that the plow would make a clean cut? Don't they allow the plow to turn under completely anything lying on top of the ground along the furrow?

McCRORY:

Yes. But keep in mind how the ordinary jointer and rolling coulter work. The coulter, and jointer, and plow share run along, one right behind the other, in a straight line. The rolling coulter, with the knife-like edge, comes first; it cuts down through any stalks or trash straddling the row; it marks off the furrow slice just as you cut a piece of paper with a knife where you want to tear it.

EISENHOWER:

Then, the jointer - the thing which looks like a tiny plow share - follows right behind that rolling coulter. The jointer bevels off the edge of the cut just made in the soil by that knife-like disc. So then everything is marked off for the furrow slice.

McCRORY:

Yes. Everything is set for the plow share coming along behind to turn over a clean-cut furrow, without leaving any jagged edges, or any stalks or trash sticking out of the ground.

EISENHOWER:

But, even so, farmers don't seem to like that particular arrangement. What's the trouble?

McCRORY:

Well, stalks, and other trash, catch between the rolling coulter and jointer. Rather than stop every little bit to clean out the trash, farmers simply take off the jointer.

EISENHOWER:

Well, on this new self-aligning, or self-angling, disc jointer, you got rid of that trouble.

McCRORY:

We did. Instead of these two attachments - the rolling coulter and the little plow-like affair - we simply have one attachment. We have only one disc, or jointer, shaped like a dish.

EISENHOWER:

Well, with the dish-shaped surface, I suppose the disc not only cuts down through the trash and topsoil, but also bevels off the edge of the furrow as it runs along through the ground.

McCRORY:

Yes, it does.

EISENHOWER:

And with just the one attachment, instead of two, you eliminate the chance for trash to jam the plow.

McCRORY:

At least, we reduce the chance.

EISENHOWER:

You say the disc jointer is self-aligning. Just how does it work?

McCRORY:

Well, the secret lies in the way the jointer is set, or suspended. If the jointer runs against a rock, and tends to push over to one side, that push immediately sets up a pull to bring the jointer back in line again.

EISENHOWER:

That sounds a little complicated. But I think I get what you mean.

McCRORY:

This new disc jointer also works on the knee-action principle. If it runs over a root or rock, the jointer will give some, but it immediately settles back again as soon as it hits soft dirt.

EISENHOWER:

Well, that ought to be a satisfactory attachment.

McCRORY:

And it has still one more advantage. The self-aligning, or self-angling, disc jointer cuts down by about 15 percent the draft or the load on the horses or the tractor. Thus it cuts power costs.

EISENHOWER:

I suppose you have taken out a public-service patent.

McCRORY:

It has not been issued. But we have applied for one.

EISENHOWER:

Well, you've told us about the new planter and the new plow attachment. I think we still have time for a word about the seed scarifier.

McCRORY:

All right. I'll be brief. As you know, farmers are planting more and more land to legumes.

EISENHOWER:

Especially sweet clover and those newer legumes, such as crotolaria and lespedeza.

McCRORY:

Yes. And, of course, some legumes, especially the newer legumes you mentioned, have a large percentage of hard seed. The coats of the hard seed are fairly water-tight. Very often, the seed lies in the ground two or three years before it sprouts.

EISENHOWER:

I suppose the hard seed is Nature's safeguard against drought years, when she produces no seed. The seed from the previous crop may come up in the year following the drought, or even several years later.

McCRORY:

But, of course, Nature's safeguard works a hardship on the farmer. Sometimes, as much as 80 or 90 percent of those hard-seeded legumes fail to sprout.

EISENHOWER:

Not if you <u>scarify</u> the seed.

McCRORY:

Well, if you scratch or scar the surface of the seed--

EISENHOWER:

In other words, scarify it.

McCRORY:

Yes. If you scarify the seed, moisture soaks in much more readily; the seed sprouts much sooner. And, of course, we already have developed equipment and methods for scarification. But most of that equipment was too expensive for the man operating a small or medium-sized place. He needed simpler, cheaper equipment.

EISENHOWER:

So, you have developed it.

McCRORY:

Yes, we developed a small barrel scarifier for the use of the small farmer.

EISENHOWER:

As I recall, you simply mounted a 15-gallon barrel, or keg, on a wooden frame so the barrel would turn like a concrete mixer.

McCRORY:

And, we fastened a shaft to the end of the barrel so you can hook it up to a motor of some kind.

EISENHOWER:

The, you put gravel and seed in the barrel. As you turn the barrel, the gravel and seed rub together; the gravel scratches the surface of the seed.

McCRORY:

That's right. But, of course, you must put in the right proportion of seed and gravel, and you must turn the barrel at the proper speed. Otherwise, you may damage the seed so it won't grow.

EISENHOWER:

Well, Mr. McCrory, I know our listeners are glad to hear about the new variable depth planter - and self-aligning disc jointer for plows-- and the simple, inexpensive seed scarifier, recently developed by the Department engineers. Thank you very much.

To you listeners who are interested in farm machinery, I think I should point out that the variable depth planter and the self-aligning disc jointer are not as yet being produced commercially. The seed scarifier, of course, can be made at home. If any of you want additional information about this new equipment, I suggest you write to the Bureau of Agricultural Engineering, Department of Agriculture, Washington, D. C.

And now, until this same time next Tuesday, ---- goodbye.

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IMPROVING AMERICAN COTTON

A radio interview between M. S. Eisenhower, Director of Information, and H. W. Barre, in charge of Cotton Division, Bureau of Plant Industry, broadcast in the Department of Agriculture period, National Farm and Home Hour, Tuesday, June 18, 1935, by 51 stations associated with the National Broadcasting Company.

* * * * *

SALISBURY:

Well... Tuesday again brings to the microphone Mr. M. S. Eisenhower, Director of Information for the Department, to unfold for you another story of how agricultural scientists are tackling and working toward the solution of some of the important agricultural problems of the day. Mr. Eisenhower--

EISENHOWER:

Thanks, Morse, - and hello, everyone.

A few weeks ago, Mr. H. W. Barre, who is in charge of the cotton work of the Bureau of Plant Industry came here to the studio with me and we talked with you about the Department's coordinated research program on cotton. At that time, I told you we would pick up the story again in a later broadcast to sketch research developments on specific problems of the cotton industry. That's what I want to do today -- I want to tell you why the research and extension people in the Department and in the State colleges and experiment stations urge cotton farmers to grow high quality cotton in one variety communities.

Let's begin by going back to the early efforts of the American cotton industry to establish itself in the world textile fiber markets.

As you know, cotton isn't a native of this country; it originated in such tropical sections as the West Indies, South America, tropical Africa, and South Asia. But, from the very earliest colonial days, the settlers experimented with cotton in the colonies. In 1784, a man in one of the southern States sent eight bags of cotton to a merchant in Liverpool. The customs officers at Liverpool seized the cotton; they claimed it could not have been grown in the United States. Even after the customs officers finally released the cotton, it lay for many months unsold. The British spinners doubted that American cotton was of sufficiently high quality for textile purposes.

Shortly after that time, the cotton industry in this country began to grow like a mushroom. Today, cotton is this country's most important commercial crop. We produce more than half of the cotton grown in the world. But, back of the phenomenal rise of King Cotton lies a dramatic struggle to produce cotton of superior quality.

So, today, I have asked Mr. Barre to come to the microphone again and tell you a little about the work of the plant scientists to maintain the reputation of the American cotton industry for a high quality product. Mr. Barre--

BARRE:

Thank you, Mr. Eisenhower -- and good afternoon, Farm and Home Hour friends.

EISENHOWER:

Mr. Barre, as I understand it, some sections of the country have produced high quality cotton from the very earliest days. The early American farmers developed some very high quality varieties, didn't they?

BARRE:

Yes, some of those early growers had the knack of seeing the good points in cotton, and of selecting and reproducing strains that produced those desired qualities.

EISENHOWER:

I suppose the famous Sea Island cotton is one of the best examples of the early superior varieties.

BARRE:

Yes. The growers on the islands off the southeastern coast of the United States carefully selected and planted seed from the better cotton in their fields; for more than a hundred years they continued to breed the cotton for special purposes and jealously guarded their seed stocks against mixtures from outside.

EISENHOWER:

And, from that careful selection, those growers produced a cotton with a long, fine, silky fiber.

BARRE:

Yes. Those growers produced long fiber cotton for sewing thread and the very finest grade of cotton cloth. Many of those planters had regular customers in England and America who bought their cotton year after year. At the same time, growers in the Mississippi Valley, and other parts of the South, also developed high grade Upland strains, which manufacturers used for special purposes.

EISENHOWER:

And, just like the Sea Island cotton, each of the improved varieties was characteristic of a particular section of the Cotton Belt.

BARRE:

That's true. And the cotton industry knew cotton variety or quality by regional names. For example, in the bends of the Mississippi River, the old river boats picked up the rather long cotton, known for a long time as "benders." Along the rivers pouring into the Mississippi, they found extra long, silky cotton, but not quite up to the bender type. They called the cotton from those localities, "rivers."

EISENHOWER:

Very appropriate. I suppose those so-called "creek" varieties came from the still smaller streams, or creeks.

BARRE:

They did. Now, the origin of those regional names to describe cotton quality has a deep significance.

You see, the secret of the success of the American cotton industry in the past century hinges to a considerable extent on two main pounts.

EISENHOWER:

Well, to begin with, by a long period of selection, cotton growers developed superior lines of cotton.

BARRE:

That's right. But second -- and always keep this point in mind -- they restricted these improved varieties to particular sections.

EISENHOWER:

That is, they kept their improved lines pure, or free from mixtures.

BARRE:

Exactly.

EISENHOWER:

Well, the cash cotton industry developed superior cotton. But along during the latter part of the past century, the cotton industry hit some snags; cotton quality declined. Possibly a brief review of what happened may throw some light on some of our quality problems even today.

BARRE:

Well, in the first place, beginning with the late '60's, there was a increase in the number of small independent farms. You see, under the plantation system, each plantation usually grew just one variety of cotton; usually had its own gin. But, with the increased number of small, independent farms, the public gin sprang up to serve the small farmer who did not have enough cotton to justify buying ginning equipment.

EISENHOWER:

Then, the mixing of varieties started.

BARRE:

Yes. Of course, you know what happens to cotton at the public gin.

EISENHOWER:

Well, I'm not from the cotton country. But, as I understand it, part of the cottonseed from one wagon load of cotton remains in the gin and becomes mixed with the seed in the next lot.

BARRE:

That's right. From actual observations, cotton specialists have found that as much as 60 pounds of seed may remain in the seed roll from one load to the next.

EISENHOWER:

So, even though a man has a pure strain of cotton, the seed may be mixed up with the seed of another man's cotton at the public gin.

BARRE:

Exactly.

Then, along with the development of the public gin, went the extension of the railroads. The railroads broke down the barriers of distance between the cotton regions. They paved the way for wholesale mixing of the various regional varieties. As transportation developed, the seed trade developed. Seedsmen distributed a wide variety of seed from here, there, and everywhere. A great many folks began to get the idea that the farther away from home they got their seed, and the higher price they paid, the better. To satisfy the demand for new, novel varieties, some unscrupulous seedsmen even went so far as to sell old, established varieties under new fancy names. Varieties were getting pretty badly mixed up.

EISENHOWER:

Then, of course, to top off those problems, the bollweevil hit the Cotton Belt.

BARRE:

Yes, the weevil began its march up from the Southwest corner of the Cotton Belt along about 1900.

EISENHOWER:

And, of course, the weevil just about finished upsetting the work of those early, far-sighted farmers and breeders. Farmers had to throw away their famous high-quality, late-maturing varieties. In their stead, they began to plant the early-short-stapled varieties.

BARRE:

That's what happened. Growers picked up seed of the newer early-maturing varieties at commercial gins, oil mills, or wherever they could get it. In addition, to meet the boll weevil situation, breeders of that period seemed to have selected cotton on the basis of earliness and yield with little regard for quality.

EISENHOWER:

So, after a period when it had reached a high level of efficiency, the cotton industry faced an entirely new set of conditions; it was forced to start all over again almost from scratch.

BARRE:

That's right to a certain extent. But in South Carolina, Webber and Coker had begun to breed Upland cottons with longer staple and better quality. In the meantime the United States Department of Agriculture, the State agricultural experiment stations, and the private breeders began to rebuild from the wreckage. They began to develop varieties successful under boll weevil conditions, but, at the same time, varieties with long fiber and other desirable qualities.

EISENHOWER:

And the breeders have made remarkable progress.

BARRE:

Yes, they have developed a large number of improved varieties such as the high-quality, long-fiber Pima cotton for the Southwest, Acala and other big boll cottons for large areas west of the Mississippi, and such long staple cottons as Express, Delfos, Stoneville, and D. & P. L. for the boll weevil country of the Mississippi Valley. Then, of course, for the Southeast and other States where wilt attacks cotton, the breeders have developed varieties to withstand wilt and improved high-yielding strains of better quality such as Cleveland, Mexican Big Boll, and Farm Relief.

(over)

EISENHOWER:

But, even after the breeders developed them, those new, improved varieties didn't seem to take hold very successfully. What was the reason?

BARRE:

Well, in the first place, because of the marketing system. You see, with varieties scattered and mixed in a hopeless fashion, the single individual in a community who produced the high quality cotton didn't get any better price than his neighbor who produced poor cotton. So, farmers didn't have much incentive to specialize in improved varieties. In the second place, even after the breeders distributed improved seed stock, the improved stock got mixed up pretty quickly with the inferior stock. Of course, some of the early, far-sighted growers took steps to keep their varieties pure. I'll say more about that in a moment.

EISENHOWER:

Well, of course, in recent years, the situation has been changing. The cotton textile mills are demanding better cotton with special, definite qualities.

BARRE:

Quite true. This new demand for quality is influencing breeders as well as growers. Until the spinners began to get more particular about quality, and until we learned more about how to measure and develop quality, we aimed mainly for high yields. At one time, we produced a great deal of three-quarter-inch cotton. At present, we have raised our standards until the American market will accept nothing shorter than seven-eights of an inch. Our breeders are now aiming for cotton with a fiber one inch long, or longer.

EISENHOWER:

I take it that long fiber isn't the only requirement. The spinners are demanding cotton with a uniform-length fiber, and also a strong fiber, and so on.

BARRE:

Yes, as we produce long fiber, we also must produce uniform and strong fiber. A classer may say a sample of cotton has an inch staple. Actually, only about a quarter of the fibers in that sample may measure an inch. The rest may range all the way down to nothing. In spinning, the extra long fibers in that sample are likely to break; the very short fibers go out as waste. The greater the variation in length, the poorer the cotton for spinning purposes. Of course, I don't know that we ever can get rid of all of that variation. But we can get rid of some of it. We can get rid of part of the variation by breeding. Part of it is due to a lack of moisture during the growing season, and other growth factors. Through our breeding work, and our studies of growth factors, and so on, we can produce cotton with a longer staple, a more uniform and stronger fiber, and the other qualities the cotton textile industry now demands.

EISENHOWER:

With the development of these new, improved varieties, the American cotton grower should be in a position to still further recover the ground he lost through those series of set-backs he suffered in the years just before and after the turn of the century.

BARRE:

Yes, so far as varieties are concerned. But the cotton industry faces still one more important quality problem.

As we pointed out a moment ago, in the so-called Golden Age of cotton back in the 18 hundreds, various sections of the cotton country were recognized for particular varieties and qualities of cotton. Improved transportation, the boll weevil, and other factors broke up that system. As we have moved ahead with the development of new, improved varieties, the cotton industry has had to devise a new plan to keep varieties pure and to build up a large enough supply of high quality cotton to attract buyers. Changing conditions, and the increasing demand for special types of cotton, have forced us to go beyond the original system of general regional types, kept pure by poor transportation facilities; we have had to get down to a specialization in superior varieties on an individual community basis. Over a period of years, we gradually have come more and more to the one-variety community idea.

EISENHOWER:

In the one-variety community, farmers organize to grow one single variety of cotton; and, of course, that variety a good one. They send their cotton to a gin where no other variety is ginned. They keep their improved variety free from mixtures. As a result, they gradually build up a reputation for their cotton just as the Sea Island growers built up a reputation for their Sea Island cotton; they get a premium for their superior product.

BARRE:

That's right.

EISENHOWER:

So, as you see it, Mr. Barre, if American cotton growers are to hold their market in the face of the increasing demand for quality cotton, they must do two things: First, grow improved varieties; second, grow those improved varieties in one-variety communities.

BARRE:

Exactly. To those who are interested in maintaining the reputation of American cotton, I suggest this: Check with your county agricultural agents or State agricultural colleges for the latest facts about improved varieties for your locality, and about how to organize a cotton community on a one-variety basis.

EISENHOWER:

Well, thank you very much, Mr. Barre, for this interesting review of the program to improve the quality of American cotton.

And now, to you listeners, good-bye until this same time next Tuesday when I'll tell you about some interesting developments in the transportation and storage of fruits and vegetables.

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PRE-COOLING FRUITS AND VEGETABLES

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A radio interview between Mr. Morse Salisbury, Chief of Radio Service, and Mr. John R. Fleming, Assistant Director of Information, on the Department of Agriculture period, National Farm and Home Hour, Tuesday, June 25, 1935.

---oOo---

SALISBURY:

Tuesday is the day when Mr. M. S. Eisenhower, Director of Information for the Department, usually reports to you on results of agricultural research. But, with Mr. Eisenhower out of town this week, Mr. John R. Fleming, Assistant Director, and I will pinch-hit for him in today's broadcast.

You remember, Mr. Eisenhower announced last Tuesday he planned to talk with you today about recent progress in the transportation and storage of fruits and vegetables.

Within the past half century farmers have built up a vast, specialized fruit and vegetable industry. Farmers of the Pacific Coast, the Southwest and Southeast, and other important agricultural regions of the country, have turned to growing - in enormous quantities - citrus fruits, berries, celery, spinach, and other products to which their soil and climate is especially suited. Growers in each of those regions produce during the season when northern truck gardens and orchards lie dormant.

So consumers are now offered a continuous supply for <u>fresh</u> fruits and vegetables.

The important industries furnishing year-round supplies of fresh fruits and vegetables became possible because of, and have continued to expand with, the development of improved storage and transportation methods. The most important thing in this development has been the evolution of refrigeration methods.

As you know, putting food products under refrigeration keeps them for a time about as they were when they came from the farm. At low temperatures, the tiny organisms that cause rots and molds and decay can't work very fast. Also, low temperatures slow down the changes in appearance and taste which follow from physiological changes within fruits and vegetables after they are taken from the vine or the tree or the bush. Refrigeration in transit is indispensable for shipping tender fruits and vegetables long distances.

Today, Mr. Fleming and I will try to tell you how Department of Agriculture scientists have worked out improved methods of refrigeration in transit. These modern methods have cut down heavy losses that threatened profits of cooperative associations and other shippers of fruits and vegetables. Obviously, work of this sort has dollars and cents importance to everyone - the growers of the products, the shippers, the transportation lines, and the consumers. But more of that later. Just now, I present Mr. Fleming.

FLEMING:

Thank you, Morse.

(over)

SALISBURY:
Jack, I wonder if you ever noticed that old refrigerator car sitting on the railroad siding at the Arlington experimental farm across the Potomac from Washington.

FLEMING:
You mean that car with "The Department of Agriculture" printed on the side.

SALISBURY:
Yes, that's the one.

FLEMING:
I understand that D. F. Fisher, and the men that work with him, use that car to test out new refrigerating methods.

SALISBURY:
That's right.

Well, did you ever hear about the other car that used to sit over there?

FLEMING:
No, I don't know that I did.

SALISBURY:
Well, they've long since junked it. But from what I learn from Fisher and others, those two cars helped write one of the more important and interesting chapters in Twentieth Century fruit and vegetable transportation.

FLEMING:
I suppose you mean the story of the work that led to the present-day method of pre-cooling refrigerator cars before they start rolling to market?

SALISBURY:
Yes. The other day, I had a long chat with one of the old-timers around the Department - S. J. Dennis.

FLEMING:
Oh, yes. He's the man who has conducted refrigeration experiments in the Bureau of Agricultural Engineering.

SALISBURY:
Well, Dennis fitted up that <u>first</u> car I told you about a moment ago. As Dennis told me about the car, he also gave me some facts about the development of railway car refrigerating methods from the beginning.

During the late sixties the fruit and vegetable people and the railroads started to refrigerate fruit and vegetable railway cars in transit. By 1900, nearly 75,000 refrigerator cars were clicking over the rails. But a lot of stuff was going bad on the road. Oranges in particular. Nobody knew just what the trouble was.

FLEMING:
Sounds very much like a plain case of poor refrigeration - not enough ice or faulty design of the ice bunkers.

SALISBURY:
Well, you might think so. But research men don't depend on guesswork. Dennis and his associates began to investigate.

They rode the cabooses of fruit trains right across the country. Every time the train stopped, they ran up ahead to the refrigerator cars, climbed in, and stuck thermometers down among the oranges to take the temperature. After they almost got fastened up in the cars a few times, they devised a system of electrical thermometers to stick in the fruit inside the cars; they could take readings of the temperature from meter-like affairs on top of the cars. You can guess what they found out.

FLEMING:
I suppose they found the fruit in the refrigerator cars wasn't cooling down fast enough to prevent rots and molds.

SALISBURY:
Exactly. From a large number of tests, Dennis and his co-workers found it was five days from the time the oranges went in the cars before they were cooled down enough to check rot or decay.

FLEMING:
Of course, five days of heating can do a lot of damage.

SALISBURY:
It certainly can. After that discovery, the investigators began to try to find a way to cool down the cars before they started rolling.

FLEMING:
As I recall, about 25 years ago a fellow by the name of Powell hitched up pipes to the refrigerating coils in a cold storage plant to blow cold air through the newly loaded cars of oranges.

SALISBURY:
But those early tests didn't turn out well.

FLEMING:
No, the equipment wasn't big enough. But following the same principle, Dennis designed some larger equipment.

SALISBURY:
But Dennis tells me the equipment was very expensive. What's more, it still was in the experimental stage. Individual shippers couldn't afford to put enough money into the equipment to develop it. So along about 1908 Dennis, and his associates, fitted up a car with a mechanical cooling plant. They took their car right into the fruit-growing sections, ran it up alongside a newly loaded car of grapes, or oranges, and pumped it full of cold air.

FLEMING:

Then, of course, they could move the car with the mechanical cooling plant from place to place to try it on cars of different kinds of fruits, and under different sets of conditions.

SALISBURY:

Exactly. The investigators used that car for six or seven years in California to precool cars of oranges, and then grapes. Later, they moved it up into Washington and Oregon to use it on other fruits, and still later, to Florida. In general, the method worked pretty well. It stirred up a lot of interest. At the same time, it gave the investigators a chance to improve their equipment and methods.

FLEMING:

And, of course, after that, pre-cooling plants began to spring up in the fruit-growing sections.

SALISBURY:

Yes, the experimentations and successes and failures, with those pre-cooling plants is a story in itself.

FLEMING:

Well, with the help of those pre-cooling plants the shippers and railroads were able to cut out a lot of the earlier spoilage and waste. They were able to put their stuff on the market in much better condition.

SALISBURY:

I suppose you know that about five years ago Fisher and his associates also tried pre-cooling ocean shipments of fruit direct from West Coast ports to Europe.

FLEMING:

Yes, I understand the development and improvement of pre-cooling methods has built up that export trade direct from the West Coast ports through the Panama Canal. With present pre-cooling and refrigerating methods, the Pacific Coast growers can ship fruit by boat through the Canal at a low cost; the fruit reaches Europe in good condition.

SALISBURY:

Of course, all an outgrowth of those early tests with pre-cooling railway shipments.

FLEMING:

Quite true. And that brings us back to the story of the development of modern methods of pre-cooling railway refrigerator cars used in shipping fruits. We got side-tracked when we started talking about pre-cooling ship holds with those plants. They have proved the only possible thing for that service. But they have two limitations for use in pre-cooling railway refrigerator cars.

SALISBURY:

I can see one of the limitations: As a rule, such plants are available only in the larger commercial fruit regions. They're too expensive to put up at the smaller shipping points.

FLEMING:
Not only that, but the ordinary pre-cooling methods are pretty expensive. Even though a pre-cooling plant is available and even though growers and shippers know they should pre-cool their stuff, a great many of them hesitate because of the cost.

So, for a number of years, men tried to discover still cheaper, simpler ways to pre-cool fruit cars.

SALISBURY:
I understand they worked especially on ways to speed up the natural cooling processes in the refrigerator car itself.

FLEMING:
That's right. Of course, you know how the ordinary refrigerator car is laid out.

SALISBURY:
Well, as I remember, the car has a compartment, or bunker, at each end of the car for ice.

FLEMING:
Yes, ice bunkers with openings at the top and bottom to let air circulate down through the ice, out into the car, up through the fruit, and back again into the ice-box, for another round.

SALISBURY:
So, the air keeps going around in circles into the ice box and out again into the warm fruit.

FLEMING:
Exactly. - Now you can see what happens. As the cold air flows off the ice, out into the car, it sinks to the floor and hits the fruit in the bottom of the car first. As the air warms, it rises. Naturally, the bottom of the car cools faster than the top.

SALISBURY:
I gues that explains why the fruit in the top of a refrigerator car is the first to go bad.

FLEMING:
That's the explanation. A great deal of the time, the fruit in the top of the car never does cool down to a satisfactory keeping temperature.

Now, some transportation investigators thought they might be able to hurry up the cooling of the top layers of fruit, and cut down the spoilage, by installing fans in the car to speed up the movement of the air.

SALISBURY:
But, of course, in speeding up the air circulation, you still would drive the temperature in the bottom of the car much lower than the temperature in the top.

FLEMING:

That's right. But Charles Mann, of Fisher's division, had an idea. Mann said, "Why not reverse the direction of the air during the preliminary cooling period?" So he tried putting powerful fans or blowers at the top opening of the ice bunker to suck the air up through the ice and blow it out on top of the load of fruit.

SALISBURY:

And, of course, the cargo of fruit cools uniformly as the cold air settles to the floor.

FLEMING:

Yes. And you know the story from there on.

SALISBURY:

I think so. Back in 1926, Fisher and Mann, and their associates rigged up one of those outfits in that refrigerator car that no sits on the siding over at Arlington farm. Of course, their idea was to try out the new method on that experimental car before recommending it to shippers who couldn't afford to run the financial risk of experimenting with commercial cargoes.

The method worked on the experimental car. Then they tried it out on commercial shipments of strawberries, peaches, and other fruits.

It was successful. The idea took hold very rapidly. Within the past two or three years, this new, simple, inexpensive pre-cooling method has come into use on shipments of oranges, pears, cantaloupes, strawberries, peaches, dewberries, and many other products. It's used in every section where perishable fruits are shipped in refrigerator cars.

FLEMING:

I understand the fruit men have found the new system highly satisfactory.

Fisher tells me you now can cool down a car of strawberries in four of five hours as against 24 to 36 hours by the old system. Also, with this new equipment, you can cool the top of the load to the proper temperature; under the old system, the top of the load never did cool properly.

SALISBURY:

I also understand the new system has cut refrigerating costs. You now can ship a car of fruit from Florida to New York without any re-icing, and from California to New York with only one re-icing instead of, say, ten.

FLEMING:

Yes. I understand the savings in general have been very great. For instance, on California oranges they amount to 30 or 35 dollars per car.

SALISBURY:

Fisher tells me the new pre-cooling system also saved the pear industry of the Northwest a half million dollars last year, largely because the pear shippers now are able to load their cars fuller than they used to when they used the old cooling system.

FLEMING:

Then, in addition, growers are able to pick their fruit much riper- the fruit reaches the market in much better condition - and it brings the grower higher prices.

SALISBURY:

Well, we've talked about pre-cooling fruit, but said nothing about vegetables.

FLEMING:

Well, pre-cooling vegetables is a different story. With most vegetables, you can't use cold air; that would dry out the vegetables too much. So, you have to pre-cool vegetables with cold water. But I guess that story will have to wait for another time.

SALISBURY:

Anyway, I think we at least have suggested some of the possible improvement, and economies, in the storage and transportation of fruits and vegetables. Of course, Fisher and his men also are working on a host of other problems. For one thing, they are experimenting with carbon dioxide as an aid in slowing up ripening, and checking decay and disease. They are developing accurate methods to tell when fruit is ripe enough for each purpose, such as shipping, for use fresh, making into by-products, and so on. They are working on improved storage methods, and proper storage temperatures. But we'll have to come back to those interesting lines of research at a later date.

So, thank you, Mr. Fleming - and we'll be looking forward to another report on developments in agricultural research from Mr. Eisenhower at this same time next Tuesday.

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SCIENCE SERVES WATERMELON GROWERS AND EATERS

A radio discussion among Milton S. Eisenhower, Director of Information, W. R. Beattie, senior horticulturist, and Ruth Van Deman, editor, Bureau of Home Economics, broadcast Tuesday, July 2, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

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SALISBURY:

Today's research report period brings before the microphone three long-time acquaintances of the Farm and Home audience - Mr. M. S. Eisenhower, Director of Information for the Department of Agriculture; Mr. W. R. Beattie, our dispenser of useful information in the Garden Calendar periods; and Miss Ruth Van Deman, reporter of news for homemakers that comes from the Bureau of Home Economics and other units of the Department.

For further reporting, I refer you first, to Milton Eisenhower.

EISENHOWER:

Thanks, Morse, and hello, everyone.

Miss Van Deman and Mr. Beattie and I are merging our regular reporting periods today for the purpose of giving you some facts on how science serves both growers and eaters of the watermelon - one of the premier fruits of this season of the year.

COYLE:

Beg pardon, Mr. Eisenhower. We announcers are a curious lot.....

EISENHOWER:

Is this a confession, Bill?

COYLE:

No, Milton ------ I meant to say we announcers are an inquisitive lot. And so.....

EISENHOWER:

So you want to know why I call the watermelon a fruit and not a vegetable. Is that it?

COYLE:

How'd you guess it?

EISENHOWER:

Well, I'll tell you. That seems to be an important point that comes up often. In fact, it runs in my mind that some years back we actually had to make an official decision on it. Maybe Miss Van Deman can tell us why the official ruling made the watermelon a fruit, not a vegetable.

VAN DEMAN:

Sorry, I can't. All I know is when we get out lists of the composition of fruits we include the watermelon. My guess is we classify it as a fruit because it's eaten as a dessert. But I'm sure Mr. Beattie can quote the official ruling.

(over)

BEATTIE:

I can't quote it exactly, but, in effect, it said that the watermelon was to be classed as a fruit because it is eaten as a dessert and not as one of the substantial parts of a meal. Your guess was right, Miss Van Deman.

EISENHOWER:

There you are, Bill. Official ruling: The Watermelon Is a Fruit. You can pass it on to any other curious -- or inquisitive -- announcers who puzzle over such deep philosophical questions in their spare moments.

Well, now. Back to the business of the day. As I was about to remark before I was so curiously interrupted by Mr. Coyle who heretofore had not taken part in the conversation -- as I was about to remark, the watermelon holds a unique and secure place in the gastronomic affections of the American people. It also plays a role in the commercial farming business, as well as in the farm garden plot.

Around 200 thousand acres a year are planted to this fruit as a commercial farm crop. Its value last year ran to more than 5 million dollars. This is another of the farm industries made possible by the American transportation system. Like the other industries it has problems which the growers and transporters ask the men of science to help them solve. And for the consumer, there is the riddle of the place of watermelons in the well-balanced diet. The key to this riddle is research into the composition of the watermelon and of other foods. Now we'll ask Mr. Beattie to give us some of the facts about results of research on the problems of the growers and transporters; Miss Van Deman to perform a similar service for consumers.

Mr. Beattie, we'll call you to the stand first. Suppose you start at the beginning and tell us whether the watermelon is a native of this continent, -- or was it introduced by the white men?

BEATTIE:

It's not a native, Mr. Eisenhower. There's some dispute as to whether it came originally from Asia or Africa, but the evidence points to Africa. Wherever it came from, it got to the New World shortly after the white man did. I take that as evidence of the wisdom and good taste of the early explorers and settlers. Old Colonial records mention watermelons as abundant in Massachusetts as early as 1629; by the middle of the 17th Century, Florida Indians were cultivating them. The watermelon soon became a staple article in farm and home gardens in all sections having the right climate - that is, 100 to 120 days of growing season and pretty hot weather in midsummer.

EISENHOWER:

Well then the watermelon - as a farm crop - followed the usual course of garden products -- grown in home gardens from Colonial times, later, grown for market in market gardens, then in truck gardens, and now on specialized truck farms.

BEATTIE:

That's been the history with watermelons as with other garden products. Today there are specialized watermelon farming sections in 18 or 19 States.

EISENHOWER:

We'll ask you to tell us of some of the production problems of watermelon growers in these sections that have been put up to scientists for solution. Have the scientists produced better varieties by breeding, worked on problems of fertilization, -- what's the main line of research work on watermelons?

BEATTIE:

Well, horticulturists and soil fertility men have done some work on both of the points you mentioned, but the chief research work applying to problems of watermelon growers has been done on problems of controlling insect pests and plant diseases.

EISENHOWER:

I suppose most of the research on insect pests has to do with things like the aphids, the cucumber beetles, and the squash vine borer -- the insects that attack all the garden plants of the family that the watermelon belongs to.

BEATTIE:

The pests of the cucurbit or vine crop family. That's true.

EISENHOWER:

Well, then, let's leave that for another time. We're going to have some reports from entomologists on their research work later in the summer. I wonder if you'd tell us about the work of the plant disease fighters on problems of watermelon growers and shippers.

BEATTIE:

I'll be glad to. By the way, it's just about fifty years now since the Department installed plant pathologists to work on horticultural projects.

EISENHOWER:

So it is. I remember recently reading in the 1925 Yearbook of Agriculture an article by Dr. M. B. Waite, one of the first plant pathologists. He's the man that directed the work on control of pear blight, isn't he?

BEATTIE:

Yes, Waite's the man. We had him on this program a couple of years ago.

EISENHOWER:

In his article in that 1925 Yearbook he told about the appeals made by the American Horticultural Society for Government study of the fungous diseases of fruits when the society met at New Orleans in 1885.....

BEATTIE:

He also told how the Department set up a section for such study in 1886. Waite came to the Department just two years later. There were just five plant pathologists here then. And Waite recalls that it was the largest group of such scientists at work in the country. Now there are hundreds dealing with the special plant disease troubles of all sorts of farmers. They and their predecessors have to their credit thousands of achievements of practical value to growers.

EISENHOWER:

No doubt of that. I wish we had time, Mr. Beattie, to get you to tell us about some of the earlier work in plant pathology. I know you came into the horticultural unit of the Department when it was just getting well under way. But we'll have to forego reminiscences, and ask you to report on the work of the plant pathologists who have served the watermelon industry.

BEATTIE:

All right, I'll get to work.

Four diseases of watermelons cause the greatest losses to the growers. One is anthracnose; another is wilt. Another is root knot. The fourth is stem-end rot. The first two occur everywhere. Root knot is a serious problem only in certain sections. The stem-end rot is most destructive in the Southeastern States where the largest commercial production is located.

EISENHOWER:

We'll not have time to go into the story of research on each of them. Suppose we just report that the scientists have worked out controls for anthracnose by disinfecting the seed before planting and spraying the growing vines; and they have found that the only control of root knot is by rotation of crops. Now I wish you'd give us a little more about research on the wilt disease, Mr. Beattie.

BEATTIE:

Well, this disease is caused by a fungus which lives in the soil. The fungus attacks the growing watermelon plants, they wilt and die, Because the fungus lives in the soil, growers have been able to avoid the disease only by planting on new land, or letting several years elapse between watermelon crops on old ground.

EISENHOWER:

A variety that resists the disease would be the perfect answer.

BEATTIE:

So it would. <u>If</u> it was a variety consumers liked. For many years there have been efforts to produce such a variety. The late Dr. W. A. Orton, of the Department of Agriculture, tried crossing the watermelon with the citron many years ago. He succeeded in producing a watermelon that resisted wilt. But it didn't catch the fancy of consumers.

Seven years ago the plant pathologists at the Iowa Experiment Station tackled the problem again. Last year at the meeting of the Vegetable Growers Association of America we had a report that they had distributed seed of three resistant varieties. The California Experiment Station men started work on the same problem in 1929, and I see in the current experiment station notes that they will have seed enough for field trials of a resistant variety this year.

EISENHOWER:

That seems to be that for your report of progress on the watermelon wilt problem. Now, tell us briefly about the work on stem-end rot.

BEATTIE:

Well, that became a serious thing for Georgia growers about 20 years ago. The growers would load cars of the finest-looking melons you ever saw. By the time they reached New York, the stem ends of the melons were beginning to decay, or the whole melons would be badly rotted. At one time I remember about 60 carloads had to be shoveled out of freight cars, loaded on scows, and disposed of as refuse.

EISENHOWER:

So something had to be done and done quickly. That was where Meier and the other pathologists came into the picture, as I recall the story.

BEATTIE:

Correct. Fred Meier was put in charge of a group of Department of Agriculture men with instructions to go into the watermelon fields and stay there until they found what caused the trouble and how to remedy it.

EISENHOWER:

You say they went into the fields, even though stem-end rot was a shipping disease?

BEATTIE:

Yes, they figured the fungus that caused the trouble got on or into the melons in the field. They had identified the fungus as being either identical with or a very close relative to the fungus that causes Java black rot of sweet potatoes, and cotton boll rot.

EISENHOWER:

So it must have been everywhere in the soils the Georgia growers used. No use trying to eradicate the fungus.

BEATTIE:

None whatever. The only thing to do was to keep it from getting into the melon. Meier and his men found it entered through the stems of the melons where they were cut from the vine; also through any breaks in the skin of the melons.

EISENHOWER:

So the remedy is to avoid breaks in the skin by careful handling of the melon, I take it.

BEATTIE:

Naturally.

EISENHOWER:

But you can't avoid that break which comes when you cut the stem of the melon from the vine.

BEATTIE:

No, you can't. So Meier recommended keeping the cut end of the stem out of the dirt of the field -- that's where the fungus is, you see. And he also tried disinfecting the cut place on the stem with a copper sulphate paste. But that didn't always work when he applied the paste in the field

EISENHOWER:
Why was that?

BEATTIE:
Because the melon might be injured later on in being hauled to the cars, and pick up new infection through the new wound.

EISENHOWER:
So the answer is to treat the melons as they are placed in the car, disinfecting all wounds, including a new cut of the stem?

BEATTIE:
Yes. That's the reason why you see men clipping stems and boys daubing paste on the cut while they load watermelon cars in Georgia and other southeastern States.

EISENHOWER:
Well, thanks very much, Mr. Beattie, for this explanation of research work in diseases of watermelons. Now, Miss Van Deman, will you briefly explain the research of the home economists on food values of watermelons?

VAN DEMAN:
Very briefly, Mr. Eisenhower. I'm afraid our analysis of the chemical constituents, and the vitamin content isn't so spectacular as the work of Mr. Beattie's colleagues who fight the fungi.

EISENHOWER:
But of high importance to the homemakers who feed American families.

VAN DEMAN:
Yes, there's plenty of reason back of it. You see, the homemaker has a jig saw puzzle problem on her hands when she starts making up menus that will give her family all the different food values they need to promote and protect their health. It's enough of a puzzle when she knows what elements of nutrition she puts on the table. If she didn't know which foods contained those elements, she'd be trying to work a jig saw puzzle without any pictures on the pieces.

EISENHOWER:
So you try to put the colors and lines on the pieces by determining the nutritive value of foods.

VAN DEMAN:
We try to help. There are many people doing nutrition research besides the Bureau of Home Economics. So one of our jobs is to gather in and make available the facts on chemical composition of foods obtained by investigators all over the world. Then we try to fill in the holes where others have conducted no investigations. We have a vitamin laboratory of our own.

EISENHOWER:
So that's how your people happened to take on the job of determining the vitamin content of watermelons.

VAN DEMAN:

Exactly. The other investigators in the field had neglected the watermelon. Apparently everyone was content to take the watermelon as the source of cool refreshment on a hot summer's day and let it go at that. We made the standard vitamin assay. Doctor Munsell and her associates found that the watermelon was a good source of vitamins A and C and contained small amounts of vitamins B and G.

EISENHOWER:

So now the meal planner can balance up sources of vitamins A and C in making up menus for the watermelon months, while getting the refreshing values and the girth control properties of that fruit into the family diet.

VAN DEMAN:

Yes, that's one way to put it. By the way, the announcement of our findings gave the editorial writers of the Nation a chance to be whimsical. We sent out just a formal matter-of-fact announcement of the vitamin content of watermelon and we got back a whole sheaf of amusing editorials.

EISENHOWER:

And why not? You have there two words which make everyone yearn to be whimsical -- vitamins and watermelons. For some reason or other folks just can't talk about vitamins or watermelons without grinning or laughing. But that's a matter of psychological research, I suppose. Maybe in some distant future the social scientists will be able to give us tables of the laugh-provoking values of such words, and tell us why the words themselves tickle the risibles of the American people.

VAN DEMAN:

Perhaps. But my eye's on the clock and I see our time is getting short, and I'd like to have from Mr. Beattie some pointers for consumers on how to pick a good watermelon in the market place come tomorrow -- the eve of the Fourth of July. As I live and go on picnics, that's the big day of the watermelon season.

SALISBURY:

So it is, so it is. But Miss Van Deman, what's pointers for picking good watermelons to do with research?

VAN DEMAN:

A good point well made. But I insist my homemaker friends would appreciate some pointers. Sometimes they have to do a lot of research of a most practical sort in the food markets.

EISENHOWER:

All right, then, ... Mr. Beattie, how about it?

BEATTIE:

All I can do is to speak from experience. But that's scientific enough. At least I have taken a big enough sample. I have compared eating quality with outside appearance of thousands of watermelons. And in making that comparison, I have found these things to be true:

A good melon has --

A clean, bright exterior;
Creamy yellowish-white background color showing under the outside green;
A good plump stem, and
No indications of decay or sunken spots on the stem, or darkening around the stem.

VAN DEMAN:
Do you ever test a melon to see if it's ripe by pressing on it?

BEATTIE:
Never. That ruins the sales value of the melon and isn't a good test. I do sometimes apply the "thump" test. An old Negro in Georgia gave me the best rule for it: "When you thumps him an' him goes 'pink' him am green; when him goes 'punk' him am ripe."

EISENHOWER:
With which bit of "rule-of-thumb" science we'll have to close this report on the services of science to watermelon growers and eaters. Next Tuesday, I'll try to bring you some facts about results of research on a grimmer subject -- how to control the parasites of animals that cause heavy losses to livestock owners.

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SOME COMMUNITIES OF DISTINCTION I HAVE KNOWN

A radio talk by Dr. Charles J. Galpin, former Chief of the Division of Farm Population and Rural Life, delivered in the Home Demonstration Radio Hour, July 3, 1935 and broadcast by a network of 49 associate NBC radio stations.

--ooOoo--

The American commonwealth of agriculture is more truly the six million families and homes on farms than the six million farms themselves. This is so, because the man on top of the land makes land into a farm; and because the family, on the one hand, creates the man that makes the farm; and the home with a woman at the helm, on the other hand, keeps the man manlike all the time he is the farmer.

But the family and the home, great as they are in themselves, would fall far short of their main purpose without the comfort and support of an environing community. So true is this that the commonwealth of agriculture, in a very real sense, may be thought of as a commonwealth of rural communities. And some of these communities are conspicuous by a reason of a single distinctive feature. Let me tell you about one or two of these remarkable rural communities.

Who can forget that community of 700 farm homes whose merchants - in the trading center of 2,500 people - have entered into a conspiracy of friendship toward its farmer clientele? The conspirators plotted to provide farmers (which means farm women, of course) with just as standard goods as can be obtained anywhere; at prices matching the most seductive prices elsewhere. The personal service in stores and shops is intelligent and eager. Every farmer and his wife are made to feel at home. And every merchant has a pride in the farms and homes around him. This mercantile theory of economic friendliness does not stop with trade, but overflows into many exhibitions of rural friendship. An annual agricultural fair in town, a health program for farm children, a get-acquainted committee to make the school teachers of the little country schools have a good time in the community, a social center at the high school for farmers, their wives, and the children who will one day be members of the school, - these are some of the indirect activities flowing from the conspiracy of financial friendship. That community is on a solid foundation; [illegible] and fortunate is the family that owns a farm there where the town understands the farmer, and the farmer has faith in the town.

I know a community of 300 farms in another state which has had a single church in its midst for a hundred years. But, what is far more to the point, this church has been shepherded year in and year out by a succession of educated and highly trained clergymen. Think what this has meant to these farm homes - and especially to the women of these homes - an adviser who has become thoroughly acquainted with the best spiritual thought and ideals of all the centuries; a man who is a real ambassador from the court of life as it should be here and from the court of life

(over)

as it will be hereafter. The boys and girls of these farms have not grown up haphazard. They have had a friend in their pastor who knows the values of education, of music, of art, of good workmanship. And a hundred years under such spiritual guidance has left its mark in every family on every farm of this rare community.

In a distant State, I recall a group of 500 farms which, from its settlement in the early part of the nineteenth century, has maintained an academy, a school of higher education. Thirty farm men and women form its board of trustees. The greatest honor that can come to any person in this community is to be president of the board. Virtually all the children of these homes receive an education higher than that of the common school, and a goodly percentage go to college and university. The state agricultural college always has some young men and women from this community. For over a hundred years, the academy teachers have been trained in the colleges and universities of the land. They have been guides to thought, manners, and accomplishments. They have brought to the thresholds of these homes the best that has come down from the learning of all races. These farmers early put a business course in their academy; the women put in a music department, and an art department; and in 1902 an agricultural department was added, and a little later the women added a domestic science department. No pity need ever be spent on this community because it is rural; for it is in touch with the world.

I visited a community of farmers recently in Czechoslovakia, living in a village of 700 persons, their farms lying spread out about the village. I was greeted at the outskirts of the village by the mayor and twelve farmer aldermen. We first visited a cooperative bank. Then we went to a cooperative chicory mill; thence to a cooperative grist mill; to a cooperative bakery, where all the bread of the village was baked; to a beautiful cooperative bath house, where everybody bathed by schedule; to a cooperative social center house; to a cooperative fire department; and finally to a cooperative electric light plant. Here was as proud a little farm community as I ever saw. I am still thrilled by the single feature of cooperation in this little farm community of Sany. Czechoslovakia.

The commonwealth of agriculture, whether viewed as farms, homes, or communities, in my experience, rises or falls as friendship, faith, intelligence, mutual confidence, rise or fall among its members.

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THE FARM UNDERWORLD

A radio interview between Morse Salisbury, Chief of Radio Service, and M. S. Eisenhower, Director of Information, U. S. Department of Agriculture, in Department period of National Farm and Home Hour, Tuesday, July 9, 1935.

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GAPEN:

Hello, everybody -- Tuesday, as usual in the Farm and Home Hour schedule, brings us a report on agricultural research work. The reporters today are well known to listeners -- Milton S. Eisenhower and Morse Salisbury. Morse speaking first.

SALISBURY:

To me one of the most fascinating chapters of all agricultural science is the fight against the hordes of animal parasites that threaten the health of domestic animals. In this fight, man is pitted against 50 thousand armies of the farm underworld gangsters - 50 thousand different species of parasites, each with billions of individuals in its ranks. On some fronts, man, with the help of science, has found ways to defeat the parasite attacks. Every Corn Belt farmer knows of the McLean County system of swine sanitation. It was worked out by men of the Zoological Division of the Bureau of Animal Industry. Correctly applied, this system greatly cuts down the losses caused by round worms of swine.

Of the parasites stockmen and scientists are currently fighting, one of the most important is the liver fluke of sheep, cattle, and goats. The liver fluke occurs in damaging numbers in about 30 States - mostly in the South, Southwest, the Rocky Mountain section, and the Pacific Coast. But, like most other parasites, it continues to spread.

Through years of investigation, the animal parasite campaigners have discovered successful methods of control. Already, they have made important progress against the fluke. As they prepare for new, major offensives, Mr. Eisenhower brings you the story of the war against the fluke as he has it from Dr. M. C. Hall, and his associates, in the Zoological Division of the Bureau of Animal Industry. All right, Milton --

EISENHOWER:

Thanks, Morse -- and hello, everyone.

The modern end of today's research story opens in California back in 1929.

For a number of years prior to 1929, California sheep growers had been suffering heavy losses. Their sheep would go out of condition; they would become emaciated; affected animals would lag behind the rest of the flock. Large numbers died.

SALISBURY:

Sounds like a case of ordinary internal parasites.

(over)

EISENHOWER:
Somewhat, yes. But the sheep also showed other symptoms, including rough, brittle wool, and a stiff gait or walk. Many of them developed large swellings on the lower side of their jaws and on their stomachs.

SALISBURY:
Well, that begins to sound like something else besides an ordinary case of internal parasites.

EISENHOWER:
When the veterinarians examined the bodies of the affected sheep, they found them infested with little flat, pale brown parasites about an inch long, and as much as half an inch wide.

SALISBURY:
The liver flukes, eh?

EISENHOWER:
Right. The liver flukes.
By 1929 they were forcing entire communities and counties in California out of sheep production. In some localities, credit agencies would no longer loan money on sheep. California's 10 or 15 million dollar sheep industry was fast going to the wall. So the California Sheep and Wool Growers' Association called on the Department of Agriculture for help.

SALISBURY:
Well, as I recall, at that time, methods of controlling liver flukes under range conditions were in the experimental stage.

EISENHOWER:
Very much so.
The parasite men were still testing out control methods. The account of their progress up to that time is extremely interesting. To pick up all the threads of the story we'll have to go back again -- in fact, back nearly three hundred years.

SALISBURY:
Quite a spell.

EISENHOWER:
Yes -- to us -- but not so long from the standpoint of history.

SALISBURY:
Well, I still think it's quite a spell. But go on with the story. You said we'd go back about 300 years.

EISENHOWER:
Yes, to the 16 hundreds. In those days folks were playing with what they looked on as sort of a new toy of the day -- the microscope. About 1680 a Dutch scientist, Swammerdam, was looking at a snail under his microscope. He saw some tiny larvae coming out of the snail, and naturally he recorded his observation in his writings.

Eisenhower (Continued):

Now, Swammerdam's report on the larvae in the snail gathered dust on the shelf for about a hundred years. Then, along about the time of our Revolutionary War, a German scientist, Mueller, noticed the same type of larvae swimming around in water.

SALISBURY:

Seems natural enough Mueller should see larvae which Swammerdam observed in a water-loving snail swimming around in water. So what?

EISENHOWER:

So another hundred years rolled by. Along about 1880, a wave of livestock diseases swept through parts of Europe, and other continents. In a single year, the farmers of the little country of Slavonia lost nearly half of their cattle. During the two years 1879 and 1880, English stockmen lost 6 million head of sheep worth about 40 million dollars.

SALISBURY:

The liver fluke, I suppose.

EISENHOWER:

Correct. The animal disease men immediately pitched in to develop control measures.

SALISBURY:

Well, first I suppose they had to trace the life history of the fluke.

EISENHOWER:

Yes. No matter whether you are tracking down a bank robber, or lined up against an army on the battlefield, or warring against parasites, you first must know your enemy's habits, and whereabouts at a particular time, and his food supply, and main lines of defense, and so on.

Now, for many years, folks had noticed that liver fluke damage was greatest in wet years and prevalent in wet areas. But nobody knew why. Farmers did know that they could reduce fluke losses by keeping their stock on dry pastures. But they knew little about control measures.

Well, about 1881 an Englishman named Thomas pieced together all the available fragments of information about the fluke's life history. And he -- well, guess what he found out?

SALISBURY:

According to all good mystery story technique, I should think the larvae and snail should figure in the case sometime soon.

EISENHOWER:

Well, let's see. As Thomas put the story together, he found that the fluke's life history runs like this: The adult fluke in the liver of sheep, or cattle, or goats produces about a hundred thousand tiny eggs. The infested livestock scatter those eggs around the farm. If the eggs reach water, they hatch out into tiny free-swimming embryos. The embryo then goes a huntin' for snails. Because it can't live only about three hours unless it finds a snail in which to live for the next period of its life.

(over)

SALISBURY:
I get it now. The larvae which Swammerdam saw coming out of the snail 250 years ago and which Mueller years ago saw swimming in water were nothing more nor less than the liver fluke at one stage in its life.

EISENHOWER:
That's the connection. Fifty years ago, Thomas built on the scientific foundation laid by Swammerdam 200 years before and strengthened by Mueller 100 years before. Now Hall and his associates know that at least 40 different kinds of snails are host to the fluke.

After a time in the snail, the embryo changes into a tiny fluke. After the tiny baby fluke escapes from the snail, it forms a kind of pearl-like cyst about itself. The cyst either floats free in the water or attaches itself to grass or other vegetation. Livestock pick up those tiny cyst-like baby flukes as they graze or drink around wet swampy places. The baby flukes work their way to the animal's liver, grow to the adult stage there, and lay more eggs.

SALISBURY:
So, the circle is complete. From animal, to water, to snail, to water or grass, and back to animal.

EISENHOWER:
That's the story.

SALISBURY:
The story of the life cycle of the liver fluke, but not of the death sentence passed on it by our modern parasite fighters. Now, as I understand it, if you break one link in the life cycle of a parasite, you destroy it. Essentially, the question put before Hall and his men by the California sheepmen was: What is the weakest link in the life cycle of the fluke, and what is the surest, least expensive way of attacking the fluke at that point?

EISENHOWER:
Exactly. See if you can retrace the reasoning they followed in solving their problem.

SALISBURY:
All right. But I have the advantage of having read the story once. Anyway, let's start with the fact that an animal with even a very light attack of flukes may scatter around thousands of eggs.

EISENHOWER:
That's right.

SALISBURY:
But, only those eggs which fall in a wet place will hatch. Of the embryos which hatch out, only those which are able to find a snail within two or three hours will live.

EISENHOWER:
Still right.

SALISBURY:
So, actually, only a very small percentage of the parasites reach, and successfully pass through, the snail stage of their life cycle.

EISENHOWER:
That's the idea.

SALISBURY:
So it seems good strategy to attack the fluke at this weak point in its life cycle before it makes a fresh attack on livestock and lays thousands upon thousands of eggs.

EISENHOWER:
So far so good. That's the line of attack on the fluke adopted for the California drive. Let's see now what tactics the scientists and stockmen used to effect that strategy.

SALISBURY:
I'm to guess again? All right. I start with knowledge of the fact that those snails that are hosts of the fluke, and that I want to destroy or isolate from my animals, hang out around marshy places, and ditches, and pools, and slow running water.

EISENHOWER:
Yes, they seem to prefer mud.

SALISBURY:
So, to protect sheep, goats, and cattle from liver flukes, a man simply could keep his stock away from damp, muddy places.

EISENHOWER:
That's one way. He might fence off those areas. Or, still better, he might drain or fill in marshy land. But, sometimes, all of those plans are impractical.

SALISBURY:
Well, then, my plan would be to get rid of the snails.

EISENHOWER:
Yes. We've agreed on that strategy. But now we're searching for the tactics Hall and his men might have used. I'll not prolong the guessing contest. Here's the research story back of the practical methods of protecting sheep from flukes: A few years ago, a scientist in Oregon -- Chandler -- discovered that even weak solutions of copper sulphate kill snails. Chandler demonstrated the use of copper sulphate as a snail-killer on a small scale. Later, Doctor Hall, and his associates, carried out more extensive demonstrations. Then, in 1929, the California sheep and wool growers put in the call for help which I told you about a moment ago. Armed with scientific knowledge acquired over a period of nearly three hundred years, the parasite campaigners made their first big attack on the liver fluke on a state-wide basis. They used weak dilutions of copper sulphate to kill snails around water holes.

(over)

SALISBURY:
I understand that was a very successful attack.

EISENHOWER:
It was. Within three years, the sheep of California were virtually free from liver flukes. The sheep industry began to come back again in communities and counties where it had been virtually wiped out. Credit agencies regained faith in the sheep industry; they again made loans on sheep.

SALISBURY:
As I remember it, with the fluke under control in California, Hall's forces pulled out of California and moved up to Oregon.

EISENHOWER:
Yes. But the control work hasn't progressed quite as fast in Oregon as it did in California. Folks just haven't had the money to spend on snail-killing. But, last year, three Oregon counties tackled liver fluke control as a relief project. They found drainage more feasible than copper sulphate. In addition to killing snails and thus controlling flukes, the drainage also increased the value of the land.

SALISBURY:
I understand that after the work in Oregon, Hall's men moved over to Utah. Later, at the request of the Montana sheepmen, they planned a control campaign in Montana.

EISENHOWER:
Then, of course, plans are now under consideration to carry on demonstration control projects in a number of other sections as part of a general offensive against the fluke. Up to now, the fluke hasn't caused heavy general losses in all sections of this country. But it is spreading. Right now is the time to stop it.

SALISBURY:
So far, we've talked just about prevention. We've said nothing about treatment for animals already infested with liver-fluke parasites.

EISENHOWER:
Well, of course, treatment is a story in itself. To tell the whole story, we would have to review the remarkable chapter in science written by Doctor Hall and his co-workers, who developed a successful treatment for human victims of hookworm in the South. In their work on that parasite of human beings, Hall and his associates discovered that carbon tetrachloride will expel parasites from both men and animals. They suggested the same carbon tetrachloride treatment for liver flukes on sheep; European workers were the first to try it, and found it effective. The treatment is given preferably during the late Fall -- say in October or November.

SALISBURY:
But they don't recommend that treatment for fluke-infested cattle?

EISENHOWER:
No, it doesn't work, and I guess I haven't time to explain why. For cattle, the scientists have no safe treatment to offer at present; they must simply say, Control the snails.

SALISBURY:
So, to our listeners in the 30 fluke-infested States, the scientists make these recommendations: To protect both cattle and sheep against infestation, kill snails in wet, swampy places by draining or filling in the wet places, or through the use of copper sulphate; or, fence off such areas. To treat infested sheep apply with carbon tetrachloride, as directed by veterinarians.

EISENHOWER:
That's right.

SALISBURY:
Well, of course, this war on the liver fluke is only one example of the fights the animal parasite campaginers are carrying on over dozens of fronts.

EISENHOWER:
Just one. There are many more.

For example, right now, Hall and his men are working on two important livestock parasites whose life histories are still a mystery. One of those parasites -- a small roundworm -- produces a skin disease on cattle. The other, a tapeworm, attacks cattle, sheep, and goats. The parsitologists have tried unsuccessfully for years to discover how those animals pick up the tapeworm. Eventually, they may find something as surprising as the way the snail transmits liver flukes to sheep, goats, and cattle. But, until they find out about those parasites what that Englishman Thomas found out about the life history of the liver fluke, they can't offer farmers effective, practical suggestions for control. But they are working steadily to forge a practical weapon against these enemies of livestock.

The parasite fighters have unfolded the life history of many damaging species. But, now they must develop successful control measures just as Chandler developed the copper sulphate control for snails or as Hall developed the carbon tetrachloride treatment for human beings and animals infested with intestinal parasites. For example, they are working with other scientists and farmers on practical control and treatments for the lung worm and the nodular worm of swine. They also are attacking anaplasmosis of cattle. They know the symptoms of anaplasmosis; they know that ticks carry the disease from one animal to another. But they don't know how to destroy the tiny organism that causes the disease or how to detect carrier cases. But I'll have to tell you more about investigations on those parasites in a later broadcast.

So, goodbye until this same time on Tuesday, July 23.

SALISBURY:
Well, thanks very much, Milton, for this very interesting chapter in the history of the war on animal parasites. We'll be looking forward to your broadcast on July 23, when, I understand, you'll describe some of the practical results obtained recently in entomological research.

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THE CONTRIBUTION OF RESEARCH TO FARM SECURITY

A radio talk by H. J. Patterson, Director, Agricultural Experiment Station, College Park, Maryland, delivered in the Land-Grant College Radio Hour, July 17, 1935, and broadcast by a network of 50 associate NBC radio stations.

--ooOoo--

It was the dream and hope of security that inspired the "Prairie Schooner" to push slowly toward the setting sun; and induced the pioneers to conquer the plains, the valleys and mountains and wrest from their soils products for the needs of man. However it developed that the farmers' security could not continually be obtained and maintained by taking up new fertile lands; but that there were other and more fundamental problems to be solved which required research and the help of science.

Farming is chiefly a business for turning men's time and unmarketable materials into marketable products. Farming is also a mode of life. The success of the business and the standards of living will depend upon efficiency, whether much or little is produced.

The farmers' success reflects benefits to every home in the land. Without the contributions made by science and research the world problem today probably would be famine instead of surpluses. It is probable, that there would be no surpluses if research in the social sciences had progressed to the point that we might know how products could be equitably and economically distributed.

The results attained by research have been contributed by scientists working singly in cloistered laboratories and through various combinations and cooperative enterprises. Today there has been developed for the benefit of the American farmer the greatest research program in the world. This has been brought about by the voluntary demands of the farmer because he realized that the results made his position more secure.

It frequently takes years to procure results and have them adopted in practice. At this time it will only be possible to mention a few of the many thousands in successful daily use.

The twenty-five million cows in the United States are furnishing efficiently an abundant supply of nutritional health giving food as a result of the work of the animal breeder in developing high production; the agronomist developing animal food supplies adapted to various soil and climatic conditions; the pathologist keeping the animals in good health; the bacteriologist, chemist, and engineer devising means to preserve products until consumed.

The same agencies have made it possible for the farmer to furnish the people of the world good meat at reasonable prices from the forty-one million cattle, fifty-one million sheep, fifty-five million hogs, and four hundred

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fifty-five million chicks, by developing strains which will convert the food they consume into more product in a shorter time. A better and a wider use of the results of pasture investigations would help produce cheaper milk and meat.

Wheat which furnishes the "Staff of life" and which occupies sixty million of the farmers' acres has had, through selection and breeding, varieties developed which are especially suited to soil, climate, valley and plateau. Many of the varieties are disease resistant in the special areas for which they have been bred.

The area available for corn has been greatly extended by developing varieties suited to a wider range of climate. The quality and yields of corn have been considerably improved.

Scientific studies have made it possible to introduce new crops in some sections and thus give farmers new sources of income. The soybean and date are notable examples.

The horticulturist and plant breeder have made possible fruits and vegetables adapted to every soil and climate. The entomologist and plant pathologist have given methods for protecting these crops from destruction by insects and diseases. The plant breeder has improved fiber plants for clothing and special purposes such as auto tires and air planes. Recent results give promise of quick growing trees for lumber.

The principles established in the study of Texas cattle fever have made possible the achievements in the control of yellow fever, malaria and typhus fever which has proven a great boon to mankind.

Research has developed disease resistant strains of plants and animals and disease preventative measures.

Real contributions have been made on the relation of foods to health, the functions of vitamins, preserving nutritive values, increasing palatability and the mineral requirements of rations.

Spraying is preventing insects and diseases from entirely destroying some varieties of trees, shrubs and plants and the natural beauty which they contribute.

Research has reduced the drudgery of the home, improved methods for protecting and preserving foods and fabrics, and contributed much to make the farm and home more livable, beautiful and satisfying.

Enough has been said to show that the results of research have made the farm income more secure and consequently the farm home more secure, which is one of the big assets in the security of democracy.

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THE CONTRIBUTION OF HOME DEMONSTRATIONS
WORK TO BETTER FAMILY LIVING

A radio talk by Mrs. Paul Eschner, farm woman, Billingsley, Maryland, delivered in the July 17, 1935, Land-Grant College Radio Hour, and broadcast by a network of 50 associate NBC radio stations.

--ooOoo--

Friends of the Farm and Home Hour, I bring you greetings from Maryland -- more specifically, greetings from Charles County, Maryland -- to me a Garden Spot -- because it is my home. Charles County is one of the five southern Maryland counties and has a population of over 16,000 inhabitants which are scattered over an area of more than 296,000 acres. And, perhaps, because most of our roads were travelled by George Washington on his numerous trips to the Maryland Shores, we go our way a bit more proudly -- a bit more happily -- as we pursue our rural activities that mean primarily a livelihood by farming -- and secondly, keeping pace with the world that lies intriguingly close, yet not too close.

The farm of today is no longer an isolated spot; the farm gate stands open and the automobile comes and goes, bringing the daily news, and quickly transporting the farmer and his family to schools, lectures, community gatherings and to nearby cities.

Further -- the day is gone when farmers were compelled to labor with only bitter experience today to caution their tomorrow, for a far-sighted government overcame this need of rural life in the creation of the United States Department of Agriculture. Those living on farms must from necessity be resourceful. The farmer must acquire practical knowledge in numerous trades, and among the sources for this knowledge are the Department of Agriculture, the State agricultural colleges and experiment stations, with their specialists available to the farmer through the Extension Service.

But what about Mrs. Farmer -- is she left to shift for herself -- is experience to be her only teacher? Not by a long shot, for functioning as a unit of the Extension Service we find a branch known as Home Demonstration Work.

This adult education, which has been carried on in groups by the Extension Service, has done much to establish in the rural home a comfortable orderliness which has helped to make the farm house a home, a comfortable place to live in, and a home which is better prepared to take care of emergencies. It has not been wealth that has made this difference, but better trained homemakers upon whose ability and skill the atmosphere and standards of the home depend. This ability and skill among farm women has spread into the communities, which has not only meant better and more wholesome living conditions in the rural home and community, but has promoted better human relationships that should last through life; and in many instances has equipped the farm women and girls to contribute to the farm income and to use greater wisdom in the spending of this income.

(over)

The following subjects have been covered by rural homemakers in Charles County -- home management, home beautification, home furnishing, renovation of furniture, principals of art as applied to the home, parlimentary law, home accounts, gardening, nutrition, preservation of foods, cooking, clothing, dry cleaning, laundering, rug making, chair caneing, better buying practices, first aid, and home nursing.

The farm women, through this guidance, have become community spirited, ardentworkers in the Red Cross and on the Welfare Boards. They sponsor 4-H Clubs, support school projects, and give of their time and knowledge freely. For the people of rural America have been brought to a keener realization, through their Home Demonstration Work, that life has a finer tang when it knows a sprinkling of diversion and more than just a veneer of culture; and so we find the farm woman of today responding wholeheartedly to one of the finest gestures made to date of Home Demonstration Work -- the Rural Woman's Short Course.

In the State of Maryland this Spring more than 700 women made time to leave their farm homes to attend special lectures in music appreciation, parlimentary law, public speaking, landscape gardening, etc., given during College Week for Women at Maryland University.

Home Demonstration Work, I feel, will help us to make our final goal which will mean an ideal farm life for every farmer and his family.

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THE CONTRIBUTION WHICH THE FARM SCHOOL
HAS MADE TO WISCONSIN FARMING

A radio talk by Chris L. Christensen, dean, College of Agriculture, University of Wisconsin, delivered in the Land-Grant College Radio Hour, July 17, 1935, and broadcast by a network of 50 associate NBC radio stations.

--ooOoo--

It requires no gift of prophecy to appreciate that the satisfactory solution of many of our agricultural problems will be greatly aided by the education of our farm youth. Moreover, this education should be in the economic and social fields which train for better rural organization and abler rural leadership as well as in the arts and sciences of agriculture.

The challenge before us is to equip educationally the young men in the rural communities to better cope with the new economic and social problems affecting farming. It is my conviction, that we will need to rely upon the educational process to open the way for intelligent understanding and subsequent participation in the economic, social and political policies and movements of the day.

In the first place, rural youth will need more rather than less education. Some of them will need to train for professional service. There will continue to be need for good agricultural teachers. Some farm boys will train for research, extension or commerce.

But today I am thinking of the thousands of young men who will man the farms. They will need a new form of education. An education that will enable them to think through the new economic and social changes. A type of education that will help them when they become farmers to handle themselves as effectively in the affairs of distribution as they are equipped to handle the affairs of production.

It was this vastly important educational problem confronting young men on Wisconsin farms that I had in mind, in the spring of 1932, when we reorganized the Farm Short Course at the College of Agriculture, University of Wisconsin. To parallel the work in the four year agricultural college course we frankly set out to provide a new educational opportunity for young men on the farm -- in their twenties and older.

I believe that this revitalized Farm Short Course now truly provides an enlarged educational opportunity. It is a broad cultural as well as practical training for farming, rural organization and rural citizenship.

The curriculum, or course of study, is built around the social and cultural needs, as well as the vocational interests, of young men.

(over)

In addition to practical training in production, emphasis is placed upon work in the economics of distribution, cooperation, markets and consumption. Rural politics, rural sociology, discussion and public speaking are also included in the curriculum. Courses in dramatics, music appreciation, art and literature provide for the cultural side of their education.

One of the valuable new educational features in the Farm Short Course is the "evening forum." Regularly, three or four evenings a week, these young men meet together in their assembly room. Leading personalities on and off the university campus, who are personally acquainted and experienced with affairs, problems and situations in industry, distribution, agriculture, education, government, world relations, banking, transportation, meet with these young men to discuss problems in their particular fields. Being very informal these forums provide opportunity for discussion. The learning process becomes vital and purposeful in the lives of these young men as citizens as well as farmers.

For a four month school period they live together in dormitories. This provides a wholesome educational environment; helpful to the social development of these young men. This community life as students gives them an opportunity to form acquaintanceships, not possible in the classroom alone, and permits a freedom in discussion of common problems. They learn to think, work and play together.

This new venture takes a form of adult education. It is planned for young men on farms between the ages of 19 to 26 and older. We have no entrance requirements. It is a two year educational course. It runs for four months - November through March.

This new Farm Short Course has been successful. Last winter young men from 69 of the 71 counties of Wisconsin were enrolled.

This kind of a well-rounded adult educational process, I believe, will help give farm people the preparation which farming and rural citizenship needs. Out of an informed and trained rural population will come a home grown farm leadership capable of making adjustments to meet the social and economic changes that science, specialization and industrialism will continue to impose on agriculture. An enlightened and informed rural people will do more to help in the great economic and social adjustments of rural as well as urban America than any other single movement.

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THE MIDSUMMER OUTLOOK FOR HOGS AND POULTRY

A radio talk by Morse Salisbury, broadcast Monday, July 22, 1935, in the Department period of the National Farm and Home Hour over NBC and a network of 50 associated radio stations.

--ooOoo--

The summer hog outlook report occupies eight closely typed pages and is crammed full of statistics. Of course, I can't send you by radio all of these statistics, nor give you all of the comments contained in the report; and if I did, you wouldn't be able to remember them.

So, I am simply going to give you a condensed view of some of the main influences that will be operating in the hog business during the next marketing year -- up to October 1st, 1936. Let me suggest that any of you who wish to study this report in detail send to the Bureau of Agricultural Economics, Washington, D. C., and ask for a copy of the Midsummer Hog Outlook Report.

The economists find that probably farmers will sell in the coming year even fewer hogs than the very small number they sold this year, but they will fatten the hogs they do sell to heavier weights. The average of prices of hogs will probably be higher than the average of prices this year, but lower than the peak of prices this year. The bureau economists expect some improvement in consumer buying power next winter.

Well, there is a very general view of the situation in prospect -- smaller numbers of hogs coming to market during the next year, American consumers able to pay more for pork and lard, the price of the live hogs, as an average of the year, higher than during the past year, but very small outlet for American hog products in foreign countries.

However, that general view does not mean much to the hog raiser. He wants to know in what months the most and the fewest hogs will come on the market, and how prices are going to run at different times during the year.

So I will give you, first, a few figures on the number of hogs that farmers will probably put on the market in the coming year; and then some estimates of the numbers that they will put on the market in different periods of the year. By the time this marketing year comes to a close on October 1, American farmers will have sold to the packers 30 million head of hogs. That is the smallest number in 25 years. But next year they probably will sell even fewer hogs, because they will start into the year with fewer pigs -- the spring and fall pig crop this year being so small, less than 50 million head -- and, they will be saving more sows and gilts for breeding purposes to increase their herds in 1936-37. So the statisticians think that farmers will put on the market even fewer than 30 million head of hogs in the marketing year that ends October 1st, 1936. These hogs will be heavier than the ones that have come to market this past year because there will be lots more feed available, and it will cost hog growers less.

(over)

But still, the total tonnage of pork and lard from pigs slaughtered in the coming year will be even smaller than the total tonnage from pigs slaughtered in the current marketing year. Also, there is now the smallest amount on record of pork and lard in storage, so that the market prices of live hogs during the next few months will not be burdened down by heavy storage supplies.

The year's supply of hogs for slaughter purposes will not be sent to market at the same times as usual in the coming year. In the 3 months from October through December, 1935, a relatively small proportion of the hogs of the year will come to market, and during the three months from July through September, 1936, a relatively large proportion of the hog supply of the marketing year will go to the yards.

Now, what effect will this distribution of hog marketing over the year be likely to have on prices in the different periods? On that point, I should like to quote to you the words of the men who made up the outlook report. They say this:

"Since supplies in October, November, and December of this year will be very small, the seasonal decline in prices, which takes place in the fall months, may start later than usual and be somewhat less than average. But prices during this period will be considerably higher than in the same months of 1934.

"The indications are that the proportion of the winter supply of hogs marketed in the late winter and early spring will be much larger than average. Therefore, the seasonal rise in prices during that period of 1936 will be relatively small, and very much smaller than that which occurred in 1935. Sometime during the late winter and early spring months of 1936 hog prices are likely to be lower than in the same months of 1935. Going on into the summer months: The number of hogs sent to market in those months of 1936 will be relatively large. Therefore, prices during the last nine months of the calendar year 1936 may be expected to average no higher than those of the corresponding months of a year earlier, and may be lower." (End of quotation.)

Now, I would like to go ahead and give you the comments of the report about the probable trend of hog production in the next two years. Of course, the economists, like everyone else, foresee that hog production will increase from its present low level. However, they are uncertain about how fast it can increase. But, that's all I have time to say, for I want to give you the highlights of the poultry outlook report. Here they are:

The outlook is favorable for poultry producers during the remainder of 1935. Egg and poultry prices are likely to continue at higher levels than last year.

The supply of fresh eggs will probably be a little larger than last year, but the supply of shell eggs in storage is much smaller and therefore will offer less competition than last year to the fresh-egg supply.

Supplies of poultry during the fall and winter will probably not be so large as last year. Storage stocks are larger at present but there are fewer hens on farms. Although there is a small increase in the number of chickens raised, a larger proportion of them as well as of hens will be saved for layers, so that a smaller proportion of the total crop will be available for market.

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RECENT ACHIEVEMENTS OF THE INSECT FIGHTERS

A radio interview between Morse Salisbury, Chief of Radio Service, and M. S. Eisenhower, Director of Information, United States Department of Agriculture, in the Department period of the National Farm and Home Hour, Tuesday, July 23, 1935.

--ooOoo--

GAPEN:

Morse Salisbury, Radio Service chief, is ready to take you along with M. S. Eisenhower, Director of Information, for another visit to the work shops of the scientists of the Department of Agriculture to see in the making some of the newer developments in agricultural science. Today, they will tell you about some recent important achievements of the insect fighters. First, you hear from Morse Salisbury --

SALISBURY:

Thanks, Ken -- and hello, farm and home folks.

After our broadcast two weeks ago on liver flukes and other parasites of livestock, a man in Cincinnati implored us to do something to help the human family. He is especially disturbed by chiggers.

Well, my sympathy to him. And more than that, I have sent him the Department scientists' latest recommendations on chigger control. Maybe they will settle the chiggers long enough for Mr. Eisenhower to report to you today progress in the war against insect enemies of animals on the farm.

Some competent authorities, think human beings may be waging a losing fight against insects. Others don't feel so pessimistic. But, in any event, insects do present a constant menace, and the insect fighters are constantly embattled.

Right now, they are marshaling their forces in the southeastern states to help farmers repel an invasion by a livestock pest -- the screw worm. The losses have been very heavy. Livestock owners have appealed for help. And the Congress has appropriated to the Bureau of Entomology and Plant Quarantine $480,000 to use in giving farmers information on how to control the screw worm fly. Today, Mr. Eisenhower will report to you what he has learned from F. C. Bishopp, director of this campaign, and his associates about the scientific research which made it possible to reduce the heavy losses caused by this insect when it is not controlled. All right, Milton --

EISENHOWER:

Thanks, Morse -- and hello, everyone.

SALISBURY:

As I get it, Milton, a bit of mystery surrounded the screw worm outbreak in the southeast.

EISENHOWER:

I'm not sure I get your point.

(over)

SALISBURY:
Well, apparently these insects had been there in the southeast for years. But they didn't cause much trouble until the series of outbreaks beginning two or three years ago, and coming to a climax with the serious outbreak last summer in Georgia.

EISENHOWER:
Well, I should say your statement is about half way correct. To give you the rest of the facts in the case, I'll tell you the story of an important research discovery by E. C. Cushing, one of the younger scientists of the Bureau of Entomology and Plant Quarantine. This discovery not only clears up the mystery of the sudden screw worm attack, but also furnishes a clue to more successful ways to check screw worm losses.

SALISBURY:
Fine. Proceed.

EISENHOWER:
This is the story as I got it from Cushing and Bishopp.
Of course, farm and range livestock in the Southwest have suffered heavy screw worm losses for a great many years.

SALISBURY:
Yes, as I recall, about 1910 or '12, the screw worm just about wiped out one of the Texas livestock farmer's best sources of income -- raising beef steers from their own herds.

EISENHOWER:
Your memory is good, Morse. Let's start our story with the Texas outbreak of screw worms 25 years ago. At that time, Texas livestock interests called for help. Doctor Bishopp, and a few entomologists under D. C. Parman, were assigned to help work out control plans. Those men studied the life history and habits of the screw worm fly -- how far the fly spreads, how it breeds, how it lays eggs in the wounds of livestock, and so on. From those studies, and their experiments with methods to control flies and destroy larvae in the wounds of livestock, they were able to offer livestock growers practical suggestions for control. I'll say more about control methods later.

SALISBURY:
Well, following those recommendations, Texas cattlemen have been able to cut down very greatly losses caused by the screw worm.

EISENHOWER:
Quite right.
Now, as one method of control, scientists and farmers, ever since the early work in Texas, had tried trapping the flies. Some folks thought trapping worked; other thought it didn't -- or at least not very well. So, in 1929, Bishopp, the veteran of the earlier campaigns, said to Cushing, "Suppose you go to Texas to investigate. Find out whether trapping actually does pay. See if you can work out any better methods."

SALISBURY:
So, Cushing went to Texas.

EISENHOWER:
Yes, Cushing went to the Texas sections worst infested during the summer of 1929, and again in 1933. In cooperation with farmers, he tried out various kinds of traps, baits, and so on. They caught plenty of flies, but they didn't seem to get a proportionate decrease in screw worm losses.

SALISBURY:
Did Cushing have any idea as to the trouble?

EISENHOWER:
Well, way in the back of his head, Cushing began to wonder if there was another fly which laid its eggs in the unprotected wounds of livestock -- a fly on which some of their control methods were not so effective.

SALISBURY:
Did they have any definite suspicions?

EISENHOWER:
Very slight suspicions, yes. I suppose you know what the screw worm fly looks like.

SALISBURY:
Yes. Very much like the ordinary blow fly.

EISENHOWER:
Pretty much so. Well, Cushing, as well as Bishopp and others, had noticed a slight difference in the coloring of individual flies. Some had a slight bluish tinge; and these were also more plump than the others. Time and again, Bishopp and others had sent samples of these flies to the men who keep the identifications and fingerprints, so to speak, of the 600 or 700 thousand species of insects actually recorded. But every time, the report came back: The darker, and the slightly bluer, flies are of the same species as the other screw worm flies. The slight differences may be due to climatic conditions.

SALISBURY:
Did those reports settle Cushing's suspicions?

EISENHOWER:
Well, Cushing tells me it did -- for a time. But, still, he couldn't help remembering that the livestock suffered from screw worms even though he trapped the flies. Also, he and others had noticed that some flies seemed to stick to the stock tighter than others as they chased the stock around the corrals.

SALISBURY:
So he still had suspicions?

EISENHOWER:

Yes, but in 1933, there was a cut in appropriations for research. Cushing, along with others, was furloughed -- laid off. But he didn't become discouraged. Rather, he took that as an opportunity. He decided to spend his furlough at the School of Tropical Medicine in Liverpool, England, making detailed scientific studies of the screw worm fly and related insects.

Cushing took along some of the screw worm flies to study. I don't know whether or not his old suspicions guided him -- but anyway he took along two batches of screw worm flies -- one lot from flies caught in the traps, and a second lot raised from larvae that he took from infested animals.

SALISBURY:

Even though both lots looked pretty much alike?

EISENHOWER:

Yes, even though they seemed to be of the same species. Well, in the quiet of his laboratory in Liverpool, Cushing spent day after day dissecting flies and looking at them under the microscope. But always they looked the same. Then Professor Patton, a member of the staff, reminded Cushing that the only possible means of identifying some closely-related species of insects is by a minute difference in appearance of the male productive organs. Cushing went back to his flies -- and looked and looked some more. In a spirit of enthusiasm on the morning of Saturday, October 22, 1933 --

SALISBURY:

Now, that's getting down to pretty fine particulars.

EISENHOWER:

I know. But that morning stands out large in Cushing's life. Up to then, he had examined several hundred flies under his microscope. They had all come from just one dish -- the flies caught in the traps. In a second dish of flies, which he had kept separate for no particular reason at all, were the flies raised from the larvae taken from the fresh wounds of livestock. On this particular morning, he was about to dump out the flies in that second dish. But, as a kind of afterthought, he said to himself, "Might as well look at one or two of them." He put one on the stage of the microscope -- then a second, and a third. He grew excited. He called in Professor Patton. Patton peered into the eye piece, and he, too, was suddenly excited. That specimen from the second batch of flies was different in appearance from any fly in the first batch. The difference could be seen only by intensely close examination -- it lay in minute variations of the appearance of the male organs.

SALISBURY:

Then Bishopp, and Cushing, and the others had been right. Two different species of screw worm flies, which look <u>almost</u> identical, attack livestock.

EISENHOWER:

Exactly. Well, Professor Patton called off the rest of his classes for <u>that</u> day. Those students and scientists spent the remainder of the day discussing the far-reaching effects of this seemingly minor, but really important, scientific discovery.

SALISBURY:
Well, since most of us are not scientists, and can't immediately sense all the excitement and drama in such a discovery, I wonder if you would point out why the scientific cheering over Cushing's discovery.

EISENHOWER:
Well, briefly, this is the way Bishopp and Cushing explained it to me.
As they have matched up all their observations with Cushing's discovery, they find one variety of screw worm fly attacks living animals; it lays its eggs in fresh wounds; the larvae enlarge the wound.

SALISBURY:
I suppose that's the fly which Cushing raised from the larvae he took from the wounds of an infested animal.

EISENHOWER:
Correct. Then, comes the second fly, the fly he got from the traps. The second fly prefers dead tissue and decaying flesh. It breeds in the wound which already has been enlarged by the first fly, and in dead carcasses.

SALISBURY:
Well, then, the first variety of fly must work in a wound before the second fly will attack.

EISENHOWER:
As a rule, yes. Last summer -- his furlough ended, and back on the job over here -- Cushing went back to Texas to study screw worm control in the light of his important discovery in England. In his study of hundreds of infested animals, he found that in at least four times out of five, this newly identified species of screw worm fly made the first attack.

SALISBURY:
Well, then, what light does this discovery shed on the poor results from trapping?

EISENHOWER:
Simply this. The insect fighters use meat as bait in the fly traps. Since this newly-identified fly prefers live animals, it doesn't enter the traps.

SALISBURY:
So, the fly which really starts all the trouble stays out of the traps.

EISENHOWER:
Yes. And being a lover of living animals, it sticks tighter to the living animals as they chase around the corral. The other species isn't so persistent, it can lay its eggs in any one of a thousand places.

SALISBURY:
So far, so good. But we still haven't cleared up the mystery of why the screw worm flies in the Southeast delayed so long making an attack after their relatives in the Southwest swung into action.

EISENHOWER:

Well, that now becomes very simple. The screw worm flies which have been in the Southeast all these years were all of the species which breed in old, aggravated wounds and dead flesh. Only after the second and newer variety which opens up the fresh wounds moved into the Southeast did screw worms cause any material losses.

SALISBURY:

With that mystery cleared up, I wonder if it wouldn't be a good idea to sum up the recommendations on how to control screw worm damage in the light of Cushing's work.

EISENHOWER:

Well, his work did not change many of the earlier recommendations for control. What it did was to show that trapping the flies and burning the dead carcasses controls only the species of fly which like dead, decayed flesh, and is the second to attack, following the damage done by the species which works in fresh wounds. Consequently, Cushing's work reduces the importance -- for screw worm control -- of trapping flies and burning carcasses. Of course the burning is important for general sanitary reasons, and should continue.

SALISBURY:

But otherwise than making trapping of flies less important, Cushing's work did not point to any less necessity for other standard control measures?

EISENHOWER:

Not at all. Rather, by showing the importance of stopping the attack of the first species of fly, it increased emphasis upon standard controls. The object of all of them is to avoid any break in the skin of the animals during the fly season -- that is from April 15th to November 15th; and if any breaks do occur, to disinfect the wounds promptly so as to avoid infestation. The county agents and the special control agents have the information on precisely what to do. I recommend to our listeners in the Southeast that they consult these gentlemen.

SALISBURY:

Well, so much for screw worms. Now could you outline for us a few of the other developments in the war on insects?

EISENHOWER:

Only most sketchily. I might say in connection with work on the use of blow-fly larvae to help heal stubborn bone infections, William Robinson made a valuable contribution to medical science. He identified a substance given off by the larvae which helps to heal stubborn wounds. Perhaps, I can tell you more about that in a later broadcast. Just recently, the entomologists and chemists have brought forth a new insecticide, rotenone, to be used where arsenicals are objectionable. I'll tell you more about rotenone in a broadcast early next month. The entomologists also are working on the control of cattle grubs, horse bots, sand flies, mosquitoes, chiggers -----

SALISBURY:
Well, I'm sure my friend in Cincinnati will be glad to hear about the work on chiggers.

EISENHOWER:
I might say, too, that the entomolgists also are investigating the life-history of insects, their habits, their parasite enemies, and so on. Those things sometimes seem pretty far from the field of practical affairs. But, only insofar as some scientist -- like Cushing -- digs up those facts, are farmers and others able to attack their insect enemies effectively.

SALISBURY:
And, possibly avoid thinking for 30 or 40 years that they are fighting just one type of screw worm fly when actually they are fighting two.

EISENHOWER:
Right, Morse.

GAPEN:
Well, thanks very much, Milton Eisenhower and Morse Salisbury, for this interesting report on the research back of the present campaign to cut losses from screw worm infestation of livestock. We'll be looking for you again at this same time next Tuesday with the story of some of the newer developments in research on meadow and forage crops.

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THE MID-SUMMER BEEF CATTLE OUTLOOK

A radio talk by Morse Salisbury, Chief of Radio Service, in the Department period of the National Farm and Home Hour, Thursday, July 25, 1935, broadcast over NBC and a network of 50 associated radio stations.

--ooOoo--

Fewer cattle and calves will be slaughtered this Fall than last when the drought forced heavy marketings, according to the mid-summer beef cattle outlook report issued today by the Bureau of Agricultural Economics. The reduction is expected to be chiefly in slaughter of calves and of the better grades of steers.

The bureau believes a larger number of cattle will be fed in the Corn Belt this Fall and next Winter in view of increased feed grain production. The result will be larger marketings of grain-fed cattle during the first half of 1936 compared with the corresponding period in 1935.

A much stronger consumer demand for beef and veal this year compared with last is reported, with indications of further improvement during coming months. This is based upon prospects for increased consumer incomes the remainder of this year and during early 1936, and on reduced supplies of pork.

The bureau expects the demand for feeder cattle to be much stronger this Fall than last because cattle finishers had good returns on cattle fed last Winter and Spring and there is prospect for increased supplies of feed in relation to the number of cattle and hogs available for feeding this year compared with last.

Cattle prices are expected to average much higher the remainder of this year than last year since slaughter supplies during the next five months will be somewhat smaller than in the corresponding period of 1934 and because of improved consumer demand.

Higher prices for better grades of slaughtering cattle are in prospect from now until late Fall or early Winter; prices of the lower grades may also advance, it is stated, especially if there is a strong demand for cattle for feeding and restocking.

Prices of stocker and feeder cattle probably will average much higher this Fall than in five years past in view of current prices of slaughter cattle, says the bureau. The combined cost of feeder cattle and of finishing them for market next Winter and Spring, it is stated, may be the highest since the Winter of 1930-31.

Looking further ahead, the bureau says that prices of the better grades of slaughter cattle during the first half of 1936 may average less than in the corresponding period of 1935, because of the probable increase in marketings of grain-fed cattle.

(over)

There may be about the same number of cattle on farms and ranches at the beginning of 1936 as there were at the beginning of 1935, but thereafter the bureau believes numbers will increase. Most of this increase for the next few years is expected in States west of the Mississippi River where the number of cattle was sharply reduced in 1934.

No material increase is in prospect in other areas, it is stated, unless reduced production of cash crops should result in increased production of hay and pasture.

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THE SUMMER DAIRY OUTLOOK

A radio talk given by Morse Salisbury, Chief of Radio Service, on the Department period of the National Farm and Home Hour, Monday, July 29, 1935, broadcast over NBC and a network of 50 associated radio stations.

--ooOoo--

The end of the six year expansion of dairy herds and return of good pastures and ample supply of feed have improved the outlook for dairymen for the next year according to the summer dairy outlook report issued by the Bureau of Agricultural Economics.

The number of milk cows is about six percent below the record number on hand a year ago. Fewer heifers are being raised so that the number of milk cows is not expected to change much during the next two years. There is still about the usual number of milk cows per thousand of population and no shortage of dairy products is to be expected such as occurred last winter. Milk production has increased rapidly in recent months and on July 1 was about six percent heavier than on that date last year and was about equal to the usual supply per capita at that season.

Creamery butter production in June was the second heaviest on record, but butter consumption has not yet fully recovered and more than the usual quantity is going into storage. While it is expected that some butter and other dairy products will be purchased for relief purposes, the supply of dairy products is expected to average larger than the short supply of last season. In some market milk areas in particular where milk prices were raised last year on account of the high price of feed, prices are now rather high in comparison with feed costs and an increase in production is to be expected.

Domestic butter prices are only slightly above foreign prices, and with relatively heavy production in prospect, imports will be small during the remainder of the year.

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AGRICULTURAL RESEARCH AND MEDICAL SCIENCE

A radio interview between Morse Salisbury, Chief of Radio Service, and M. S. Eisenhower, Director of Information, United States Department of Agriculture, in Department period of the National Farm and Home Hour, Tuesday, July 30, 1935.

--ooOoo--

GAPEN:

Tuesday -- and it's research day on the Farm and Home Hour. We again have with us M. S. Eisenhower, Director of Information, and Morse Salisbury, Chief of the Radio Service, who regularly report to you on recent important developments in the research program of the Department of Agriculture. For further details, I turn the microphone over to Morse Salisbury --

SALISBURY:

Thanks, Ken -- and hello, Farm and Home listeners.

As we announced last week, Mr. Eisenhower and I had planned to talk with you today about research on forage crops. But we decided to postpone that topic until after the arrival in Washington of P. V. Cardon, of the Utah Agricultural Experiment Station. Doctor Cardon is coming to take the place of Dr. A. J. Pieters, retiring veteran of the Department's forage crop work.

So today, Mr. Eisenhower and I are going to report to you a recent remarkable development in entomological research which we mentioned very briefly last week when we were discussing screw worm research and control. This account today will show you how the much-despised larvae of the fly, under the skilled hands of a research scientist, revealed the secret of the cure for stubborn, non-healing wounds of humans. All right, Milton.

EISENHOWER:

Thanks, Morse, and hello, everyone.

Before we go into the details of today's story, Morse, I should like to say just a little about some of the many other contributions that agricultural research men have made to medical science.

SALISBURY:

By all means. . . .

EISENHOWER:

I don't suppose many laymen realize that the work of Smith, Kilbourne and Curtice of the Bureau of Animal Industry on a problem of animal health gave results now rated among the most valuable to practitioners in human health.

SALISBURY:

No, probably not many people know about that.

(over)

EISENHOWER:

Well, if it hadn't been for the work of these three Department scientists, the United States might never have built the Panama Canal. We might have lost many precious years in trying to find the mode of transmission of malaria fever, Rocky Mountain spotted fever, and African sleeping sickness.

Back in the period from 1888 to 1893, the scientists of the Department of Agriculture, discovered in the blood of cattle the tiny organism that causes splenetic fever. They further discovered that this disease is carried by the tick. And so Smith and the other men working on the project showed, for the first time, that insects spread microbial diseases. Their work gave the cue to medical investigators who discovered later on that such serious diseases as yellow fever and malaria are spread from person to person by insects. And everyone knows that this discovery showed the necessity of getting rid of mosquitoes in the Canal Zone -- thus do away with yellow fever, and enable us to build the Canal.

Now, I suspect many people will be surprised to learn that Department scientists paved the way for modern vaccine treatments through their discovery that injections of sterilized cultures or dead bacteria make animals immune to certain diseases. The typhoid fever inoculation of human beings that has saved tens of thousands of lives was an outgrowth of this discovery.

SALISBURY:

You've got me started on this trail now, Milton. I recall another important discovery -- that tuberculosis of livestock also attacks human beings. As soon as the scientists brought this fact to light, the Department launched a nation-wide warfare against bovine tuberculosis which has practically freed a large part of this country of that disease.

EISENHOWER:

And to mention just one more item -- the discovery by Maurice Hall, of the Bureau of Animal Industry, of an effective treatment for hookworms. This has benefited more than five million people in the United States alone.

SALISBURY:

Well, we could go on citing example after example. But I think we had better come back to the main report for today. You were going to tell about the new healing material for stubborn, infected wounds.

EISENHOWER:

All right, Morse. I'm going to begin by telling about a letter that came to the Department two or three weeks ago. This letter came from a prominent man and expressed his appreciation of the research work we are reporting on today.

This man had a wound on his foot which refused to heal. His doctors tried various treatments unsuccessfully. Finally, the man learned about a new healing substance discovered by a Department entomologist, Dr. William Robinson. His doctor tried this material. It worked. The man was able to walk again without the aid of crutches.

The Department is getting many such letters from doctors, and hospitals, and others. A great many people suffer from non-healing wounds for which no cure was previously known. But now we have Robinson's discovery.

SALISBURY:
Well, to begin with, what is this new material?

EISENHOWER:
It's called Allantoin.

SALISBURY:
Perhaps you'd better spell it.

EISENHOWER:
It's spelled just as it's pronounced -- "Allántoin." A-l-l-a-n-t-o-i-n. Allántoin.

SALISBURY:
All right. Now let's go ahead with the story.

EISENHOWER:
Well, Robinson discovered that allantoin heals up stubborn, non-healing wounds quickly, painlessly -- and cheaply. But Robinson's discovery is really an outgrowth of another important discovery which was made during the World War. Of course, everyone remembers the serious trouble in curing deep wounds of many soldiers injured on the battlefield.

SALISBURY:
As I recall, wounded doughboys suffered a great deal from the stubborn bone disease called osteomyelitis.

EISENHOWER:
Well, Morse, suppose we test your spelling ability for a change.

SALISBURY:
Fair enough. Let's see -- O-s-t-e-o-------m-y-----e-l-i-t-i-s. Osteomyelitis.

EISENHOWER:
To the head of the class, Morse. . . Well, during the World War, the late Dr. William S. Baer, noted bone specialist at Johns Hopkins, served with the American Expeditionary Forces overseas. During his service, naturally a great many cases of osteomyelitis came to his attention. On one occasion, Doctor Baer observed two seriously wounded soldiers who had lain out on the battlefield for nearly a week. Their wounds had become infested with larvae of the common blow fly.

At first, the condition of those soldiers seemed very serious. But, as the surgeons cleaned the wounds, they were much surprised to find how free they were from infection. Stranger still, the wounded men recovered with amazing rapidity, despite their long exposure and harrowing experience -- all quite contrary to the high death rate among other soldiers with similar wounds who were rushed to the hospitals and given the best possible surgical treatment.

SALISBURY:
My prejudice against the children of the fly is all but ready to soften a little.

EISENHOWER:

Well, ten years passed by. As Doctor Baer treated case after case of that stubborn bone disease, osteomyelitis, he kept thinking about what he had noticed on the battlefield. What, if anything, did those blow-fly larvae have to do with the healing of those wounds?

SALISBURY:

Certainly would seem worth investigating a little.

EISENHOWER:

Baer thought so, too. And, finally, it happened that he had two patients--young girls who were suffering from the dreaded osteomyelitis. Their infected bones did not respond to the usual treatment. Their condition became critical. So, as a last resort, Baer decided to use larvae in the wounds. He watched and waited. In about two weeks, the wounds began to heal -- and the children finally recovered.

SALISBURY:

I suppose Baer's successful demonstration put the larvae treatment before the medical profession.

EISENHOWER:

Yes. Since that time, the larvae treatment for osteomyelitis has spread throughout the United States, and most foreign countries. But, early in his investigations, Baer realized that the larvae might introduce dangerous germs into the wounds. For that reason, and because he had trouble, especially during the winter, in keeping enough larvae at hand, he called on the entomologists for help.

SALISBURY:

Naturally, the entomologists could help furnish supplies of larvae; they are constantly working with insects and larvae in the solution of just such problems as Cushing solved in the discovery of the second species of screw worm fly. But what help could the entomologists offer on the disease hazards in using larvae?

EISENHOWER:

Well, they knew the habits of flies and their larvae. Robinson and his associates were able to develop a more successful way to sterilize the eggs without hurting them, and to raise the larvae on sterile food. Thus they made the larvae treatment safe by insuring that the larvae themselves would not transmit a disease to the patient. But, the entomologists and surgeons were not content to keep on using larvae in the treatment of wounds. All the while, they wondered about, and sought, the secret of the lowly larvae's great healing powers.

SALISBURY:

Well, you'd suppose the larvae probably cleaned out some of the dead, infected tissue in the wound.

EISENHOWER:
Yes. But the surgeons and entomologists suspected still a second possibility. From all indications, the fly larvae also apparently did something to stimulate healing in the wound.

SALISBURY:
Sounds as though the larvae might eject some kind of healing substance into the infected tissue.

EISENHOWER:
That was the thought of the scientists. But what was this mysterious substance? If the entomologists could unravel that secret, possibly they could find another source of the material. Surgeons no longer would have to rely on larvae in their treatments. So, Doctor Robinson began to investigate -- to investigate the complicated physiology of this tiny larva -- to study the chemistry of its secretions to discover any possible substance with healing properties.

SALISBURY:
Well, from the little I know about the complexity of such excretions, I would say Robinson was looking for a rather small needle in a very big haystack.

EISENHOWER:
He was -- no doubt about that. I won't try to review all the details of Robinson's research. But, very painstakingly, he began to gather all available facts and data on this problem. He tells me he also mixed some of his own hunches with the facts. Piece by piece he built up his case.
Now, other scientists had noted that a mixture made from the embryos of certain animals had a healing effect. Oddly enough, those particular animals produced the substance called allantoin. Then Robinson, in studying the fly larvae, found that they, too, produced allantoin.

SALISBURY:
Seems that Robinson at least had struck a warm trail.

EISENHOWER:
He had.

SALISBURY:
But, now, the question became: Is the allantoin actually the substance which produces the healing? Or is it something else?

EISENHOWER:
That's right. Robinson searched high and low -- he combed the scientific literature of the United States and Britain -- but he found no evidence that allantoin had any therapeutic value. Maybe some other chemical in the larvae's complex excretion produced the beneficial effect. But, anyhow, Robinson thought it was worth while to go ahead with allantoin. Last August he began

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his experiment in cooperation with a hospital here in Washington. The doctors presented their bad, discouraging cases -- cases of chronic ulcers, burns which had failed to heal, and other non-healing wounds. Very cautiously, they began to apply this new untried remedy. They used weak solutions, for, after all, the excretions of live larvae placed in wounds must have been weak.

Case after case began to show improvement. And thus encouraged, Robinson extended his cooperation to another Washington hospital, and to a hospital in New York. The new allantoin treatment continued to work successfully. Old wounds began to mend.

SALISBURY:

So, Robinson, and the others, are convinced that allantoin is an important healing agent.

EISENHOWER:

They feel they have proved it in the laboratory and in practical application. Surgeons are using it in hundreds of cases on a wide variety of internal and external non-healing infections.

And by the way -- just recently, Robinson discovered a reference to some work done 23 years ago by a Dr. Macalister, who used allantoin successfully in the treatment of ulcers. He also reported that European peasants long had applied the roots of a plant called comfrey to sores. Comfrey also contains allantoin.

SALISBURY:

So, out there on the world war battlefield, and in the hundreds of cases since treated with larvae, those tiny larvae shot allantoin into the infected wounds and checked the infectious germs.

EISENHOWER:

That's right.

SALISBURY:

But now that the doctors know the identity of the healing material, they can get allantoin from other sources.

EISENHOWER:

Yes, the chemists are now able to make it.

SALISBURY:

So, with the larvae's secret powers revealed, they now can dispense with these worthy -- but annoying -- benefactors of mankind.

EISENHOWER:

Well, of course, one main purpose of Robinson's study was to discover materials with which to treat such wounds without having to introduce larvae into the wounds. But Robinson tells me that the larvae may still have a value. The larvae still may be useful for treating deep-seated bone diseases.

SALISBURY:

I believe you said allantoin is odorless and harmless, and painless -- And what else?

EISENHOWER:

And inexpensive. A moderate-sized application costs only about five cents. Doctors usually prescribe one application a day.

SALISBURY:

Well, what would you say to those suffering with slow-healing wounds who might be interested in this new method of treatment?

EISENHOWER:

Well, I think the staffs of many hospitals already know about allantoin. Also, a great many doctors in general practice. To any person who is suffering from chronic ulcers or slow-healing wounds, I would say this: Self-medication is not advisable. Consult your physician about this new treatment. If it hasn't come to his attention, and he is interested, he may write for further information to Dr. William Robinson, Bureau of Entomology and Plant Quarantine, Department of Agriculture. Of course, application of this discovery is in the hands of medical practitioners, and the Department of Agriculture simply makes the facts available to members of the profession.

SALISBURY:

I might repeat, though, for any listeners who intend to bring the subject to the attention of their physicians, that the name of the healing agent discovered by Doctor Robinson is allantoin (spell).

GAPEN:

Well, thanks very much, Mr. Eisenhower and Mr. Salisbury, for today's broadcast on the contributions of agricultural research to medical science. Unless plans again go wrong, we'll hear from you at this same time next Thursday a report on new research developments in the dairy industry.

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TENTATIVE PROVISIONS OF NEW WHEAT CONTRACT ANNOUNCED

A radio talk by Morse Salisbury, Chief, Radio Service, delivered in the Department of Agriculture period, National Farm and Home Hour, broadcast by NBC and 50 associated radio stations, Wednesday, July 31, 1935.

* * *

The new wheat adjustment plan, asked for by wheat producers in their referendum May 25, is virtually completed and the contract is expected to be ready to offer farmers soon in substantially its present form, the Agricultural Adjustment Administration announced today.

The new contract follows the lines worked out by producers and the Agricultural Adjustment Administration in the conference of representative wheat farmers in Washington July 1 and 2.

It will cover the four-year period, 1936 to 1939 inclusive, but will be subject to termination at the end of any marketing year by the Secretary of Agriculture, and any grower has the option of withdrawal at the end of the first two-year period. A two-year instead of a one-year withdrawal period is provided for because, in the dry farming regions, wheat production, alternating with summer fallowing, is commonly a two-year operation.

The contfact will be effective first on the wheat crop for 1936, but as winter wheat plantings for that crop will soon begin, it is necessary to offer the contract to farmers as soon as possible.

As soon as the contract and supplementary forms are approved and printed, a sign-up campaign is planned among wheat farmers. The campaign will seek to place from 50 to 53 million acres of the wheat land of the country under contract. In the first campaign, in 1933, approximately 51 million acres were placed under contract, representing approximately 78 per cent of the 66 million acres of wheat land in the United States.

To inform winter wheat growers of the probabilities as quickly as possible, so they may start their planting plans, it is announced that the required reduction with respect to the 1936 crop year will be 15 per cent of the base acreage. With the adjustment of 15 per cent any contract signer may plant not more than 85 per cent nor less than 54 per cent of his base acreage for 1936. Plantings in subsequent years can be varied up or down within a 25 per cent maximum, as demanded by conditions.

The main differences between the contract now under consideration, and the original one signed in 1933 include: a more specific provision for adjustment payments based on actual average farm prices of wheat during the marketing year; a four-year program instead of three-year one, but with option for growers to drop out of the plan at the end of two years if they wish to do so; maximum reduction from the total base acreage of 25 per cent instead of 20; provision that changes in the division of adjustment payments resulting from changes of lease arrangements by landholders must be approved by county allotment

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committees; and a provision under which a signer may designate a beneficiary to receive adjustment payments in the case of death or disappearance of the signer. Greater responsibility for county allotment committees and increased local participation in administration of the program is provided in several ways.

Within a county the new contract will permit minor adjustments in acreage among contract signers in line with sound farming practices. This provision is intended to correct inequalities which would occur, in some instances, from strict adherence to the historical base.

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★ AUG 10 1935 ★
U. S. Department of Agriculture

TRAINED LEADERS PROVIDE COMMUNITY RECREATION FOR YOUNG AND OLD

A radio talk by Gladys M. Scranage, State Girls' Club Agent, Morgantown, West Virginia, delivered in the National 4-H club radio program, August 3, 1935, and broadcast by a network of 59 associate NBC radio stations.

--ooOoo--

If, today, you and I could get a clear picture of the many activities that are providing recreation in rural communities everywhere, we would find many interesting events which are worth while and valuable. It would even be more fun to take part in the horseshoe pitching tournament, the volleyball game, the star study or other events that we might find. The recreational program, that is being developed in West Virginia by local leaders, is one of the direct movements that is making life in the rural community more attractive, more inviting and more bountiful in real joys.

Successful community recreation depends almost entirely upon leadership. Can't you see this leader - radiating happiness, just-for-fun, enthusiasm; being honest, fair, loyal, sincere; having a sense of humor; knowing the needs of the community and continually selecting and planning activities that fit. You may have the idea that to find a game or relay race your community has never played before is enough but we find our leaders, through camps, county meetings, Country Life Jubilee, Recreation and Art League, are interested in a broader kind of a plan. Perhaps you would like to take your pencil and make a note of some activities that have provided recreation for young and old. Here are a few:

Checker Tournament
Picnics
Harmonica Band
Singing
Country Life Festival
Folk Dancing
Play Night of Games
Singing Games
Dramatic Club
Bird or Flower Study
Story-telling
Gypsy Patteran
Reading Club
Arbor Day
Hobbies
Puzzle Shop
Community Circus
Spelling Bee
Marble Tournament
Swimming
(With a Life Guard on duty)
Homemade Games
Pageants
Camping
One-day Travel
Soup-boiling
Star Study
Vesper Services
Crafts (leather, silver, brass, copper)

Another definite part of lasting community recreation is the family fun, in home circles. Your family will find that a shelf or drawer for homemade games, play equipment, and a collection of songs will help you be ready at a minute's notice when the neighbors drop in for a good time. Outdoor cookery has many possibilities for families and neighborhoods. Our 4-H members in farm homes like the experience and flavor of making a kabob or an "angel on horseback".

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Maybe yours would, too! An old man, whose children had "turned out" well, sat at a neighbor's fireside one night and said, "When my family was young, I always made it a point to be at home by 8:30 every evening. I'd bring up a pan of apples from the cellar, and sit and peel them for everyone while we talked and told stories. Do you know that my youngsters didn't want to miss that?" The apple-peeling was an all-family recreation - at home - with no cash cost. I believe that your homemade fun will be well liked.

Some of our 4-H club members have had exhibits at county fairs to show more people homemade play equipment and games that could be played at home for family fun.

You would be interested to know that the program of the farm women's clubs in West Virginia includes a very definite recreational plan. Each club has a recreation committee to carry out a part of the suggested program of the State Recreation Committee of the Farm Women's Bureau. These women find real joy in working on these committees, and come to camp and county meetings eager to be helpful and to learn more. They truly play with young people and enjoy it. Nellie Hefner is a good example. At Swago, West Virginia, she leads a 4-H club, is on the recreation committee of her farm women's club, and is continually using her store of information and equipment for her community. This spring, I went to the farm women's meeting at her house and the fun that she had planned for them, including a sugar stirrin', singing and games, one of which began:

"Jenny crack corn and I don't care,
Jenny crack corn and I don't care,
Jenny crack corn and I don't care,
For Massa's gone away."

She is helping her community to have wholesome social activities that bring about a better spirit of cooperation and that encourage the folks to express their best ideals, attitudes and appreciation of country life.

There is much fun and profit in your leisure time and in the leisure time of your community - why not find new ways, through recreation, of furthering life enrichment? It may bring much joy to you and to your neighbors.

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HOW 4-H CLUB BOYS AND GIRLS MAKE HOME LIFE HAPPIER

A radio talk by Miss Mary Rokahr, Extension Economist, U. S. Department of Agriculture, delivered in the August 3, 1935, National 4-H club radio program and broadcast by a network of 59 associate NBC radio stations.

--ooOoo--

"To make the best better" is the 4-H Club motto with which you are all familiar. I should like to add another one to it. It would be: "To do a good deed every day to make home life happier". I know many of you 4-H club boys and girls have already achieved this maxim by taking care of yourselves. By that I mean learning to eat the right kind of foods that will build health; raising, canning and cooking these foods; selecting and mending your clothes; keeping your rooms neat and orderly; doing the chores on time; adding to your income and sometimes that of your parents by raising poultry and livestock; growing crops; and by accepting responsibilities in home and community programs.

So to-day I do not have to talk to you in generalities. I can give you some fine examples of what 4-H club boys and girls are doing throughout the United States to make their home life happier.

Patrick Manning, a 4-H club member in Franklin County, Massachusetts, belongs to a club which took part in a statewide "fix-It" Campaign. Patrick repaired fences, his brother's toys, his mother's chairs, and in other ways helped to make the furnishings of his home more usable, and thus added to the family happiness.

Katherine Bean, of the Southside Club, in Etowah County, Alabama, says: "I took sewing club work first and learned to make my own clothes which saves my mother a lot of sewing. Now I am taking cooking club work and I have learned to cook many things which I did not know before I joined the 4-H club. I help my mother with her cooking just lots."

Three sisters in Pulaski County, Kentucky, made their family happier by improving their home grounds. They hauled stones from a creek nearby making a stepping stone walk. In the backyard they built bird baths and a lily pond, which is surrounded by 150 varities of flowers, trees and shrubs, which did not cost them a penny. The three sisters did not do this alone - the entire family cooperated. Each family member had a definite task. That, perhaps, is the secret of happy family life - family cooperation.

Tilford W. Cocks, County Club Agent, Tolland County, Connecticut, reports that 4-H Club members in his State made games and home play equipment during this last year. Mr. Cocks says it is impossible to estimate the value of these articles, since their actual value is so little as compared with the indirect value or good that they do in the homes, in the form of good, wholesome recreation or entertainment, keeping the family together, and strengthening the relationship between children and parents. Mr. Cocks also says that through this activity the parents learned that a large percentage of the boys and girls are growing up without the least knowledge of the use of tools.

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In Minnesota parents and 4-H club boys and girls cooperate in partnership agreements, in raising certain farm commodities. The boys and girls also keep the household and farm account records that bring about good business management.

Doing everyday jobs or chores cheerfully and on time, parents tell me, is one of the very best ways to help make family life happier. 4-H Clubs in Baggs, Wyoming, send us an example of much happiness given to both parents and boys and girls by using a family bulletin board or chore board on which are listed the duties of each family member for the day or week.

As chores are done, each person has the privilege of checking it off, and thus you see, reminding is made unnecessary.

Mattie Jordan, a negro home demonstration agent in Mississippi, reports that the 4-H club girls in her State are teaching their little brothers and sisters to play more in the sunshine during the winter for good health; they help their mothers sew and make simple garments that are easy to put on and in every way help their little brothers and sisters to be obedient, self-reliant and unselfish.

An example of how 4-H boys and girls help make family life happy by leading in community activities comes to us from California. A 4-H girls' club, established a Sunday School in a community where there were no religious services and now there is in this community a church for adults and a Christian Endeavor Society for young people.

Iowa 4-H club homes this last year were made especially happy because the boys and girls all learned to sing selections from the opera, "Bohemian Girl", and some of them, as well as their parents, took part in June in a magnificent presentation of this opera at the State College at Ames.

4-H club boys and girls throughout the United States are helping to make home life happier. Sometimes by fixing up and improving the yard or the furnishings of the house; by doing household and farm tasks without being reminded; the girls, by learning to buy wisely, to sew, cook, bake, clean, and to manage; and the boys by learning to farm by the best methods.

I have had the privilege of meeting many 4-H boys and girls and their parents throughout the United States and I should say that happy family life is the result when every member does his daily tasks cheerfully.

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WHAT WE ENJOYED AND LEARNED AT THE COUNTY AND STATE 4-H CAMPS

A radio talk by John Rohlf, Lincoln County, S.D. 4-H club boy, delivered in the National 4-H club radio program August 3, 1935 and broadcast by a network of 59 associate NBC radio stations.

--ooOoo--

In 4-H club work we have a number of activities aside from the regular project work. It is safe to say that county and state camps furnish more enjoyment and educational value than any other single activity.

County and district camps are held during the summer months at convenient places within the state. In the forenoons the members receive instruction on topics related to farm and home life and in the afternoons participate in recreational activities. In the evenings group assemblies in the form of campfire meetings are held.

Timely topics are selected for the program. For instance, during our drouth period grasses and emergency crops were important. In view of the current discussion of the corn-hog and wheat allotment programs, the AAA has been used in the classroom as a topic to better acquaint the 4-H boys with this subject. Soldering and other shop work has always been popular. Livestock judging is often included in the instruction period. This was my fifth year at camp and the 1935 event seemed best of all. The members were especially pleased with the craft work, music and courtesy.

The girls are taught various home making aids. They also follow an extensive music achievement program which is concluded by a test at the state club week.

Wide awake 4-H members need recreation in addition to the class work to enjoy the outing to the fullest extent. In the county camps kittenball and baseball are the most used games. Swimming is very popular. Rifle and archery were introduced in our county camp this year.

Assemblies are held every evening to inform the club members of coming events, the appointing of committees, and like work. Quite often programs are presented representing in part the talents of various members. Programs for the public in the form of stunt or pageant nights are the highlights of many camps. Some years the same pageant is presented at all of the camps and a cast of characters chosen to reproduce it at the state Farm and Home day later in the summer. At the Lincoln county camp of 1935, the stunt program was presented on the floodlighted ball field on a stage in front of the grandstand. Several of the camps have a guest night when the mothers are dinner guests. This year at the Lincoln county camp a dinner was held with the Lennox business men and Farm Bureau board as guests. Spontaneous singing of well-known club songs featured the mealtime period.

In the state of South Dakota there are thirteen county and district camps. These are financed by different means, usually by the members sharing

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the expense among themselves. The Lincoln county camp at Lennox has been made possible for the last fourteen years by the business and professional men of Lennox and vicinity.

Every year about 300 club boys and girls, most of them county champions, meet at the state fair camp. This camp includes judging teams, demonstration teams, exhibitors and health champions. State champions are determined at this time and some of the winners represent the state in national events of similar nature.

The Junior Short Course or State Club Week is held at the State College of Agriculture at Brookings in the last week of December during the Christmas Holidays. It offers an excellent climax for the past year and gives added incentive for future work. Delegates are present from all parts of the state. The facilities of the college are used for the week. Features of this event include a party in the large college armory, a theatre party, an orchestra composed of 4-H members, a camp newspaper and a state basketball tournament. So intense has been the rivalry that no county has been able to win the basketball title more than once. From their instructors the members are able to see their project work at a different angle in relation to the whole of 4-H clubs. They also are able to learn something of the purpose of the agricultural college. Many club members decide to attend college as a result of short course experience.

The county and state camps provide excellent opportunity for developing leadership; a chance to renew old friendships and make new ones; and gain enthusiasm to carry on 4-H club work in the home community. I am sure I speak for a majority of the 1,960 members attending the South Dakota camps when I say that this year's program was the most profitable and enjoyable that we have ever had.

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HOW WE MIX WORK AND PLAY IN OUR 4-H CLUBS

A radio talk by Mildred Reed, 4-H club member, Upshur County, West Virginia, delivered in the National 4-H club radio program, August 3, 1935, and broadcast by a network of 59 associate NBC radio stations.

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Isn't it strange how people will say that 4-H club work, or education, is preparation for life? They are life not preparation for it. We don't prepare for life until we are through school, and then automatically start living, we are living all the time. 4-H club work is a very vital factor in the lives of all the boys and girls who are in it.

In 4-H work there is a mixture of hard work and play, although we make much of our work seem like play. We work hard trying to get a little better results from our living than most of the "grown-ups" today.

Our work consists of project work, which is a set amount for everyone; and of work in carrying out club and community projects. Here the amount of work done varies according to the individual.

The time when it is hardest to see the difference between our work and our play is at camp. We have classes in mornings where we discuss problems and try our hands at making different things and learn a lot. A lot of people have the idea that you have to work to learn. But don't we learn most and easiest when we are having the most fun? Of course, I don't mean to say that work isn't fun. Besides attending classes, we make our beds, keep the rooms clean, play all kinds of games, swim to our hearts content, have council circles, hikes, nature walks, exploration trips if the camp is back away from civilization. We eat, sleep, sing and yell and it is all so much fun that we couldn't tell which of it is work and which is play.

In our regular monthly meetings we combine work and play. In these we try to develop an idea each month. We have a central idea such as conservation, appreciation of the good and beautiful - one month art, another nature, books, people's lives, etc. All the parts of the program contribute to this central idea. Our meeting is usually divided into three parts: Business, discussion of the central idea, and recreation. In our club paper "4-H Suggestions" there is a regular column "Just-For-Fun" by our State Girls' Club Leader, which gives suggested games to try.

One of our regular club projects is to raise money to send representatives to county camp. It is done in different ways, and although it is usually hard, it is fun too. Last year our home club had a 4-H Carnival. It was just like a regular Carnival with exhibits, little booths, sandwich place, a main show, colored lanterns, etc. Even hard work can be made so interesting that it becomes play.

Project work is usually considered as pretty hard work. But don't we enjoy hard work? Especially do we enjoy it, when we have the satisfaction of knowing we're doing it well.

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The fun in project work comes at fair time when you can go to 4-H Fair and see your work exhibited. Maybe you can help arrange the exhibits. You can compare your work with that of somebody else, meet other 4-H'ers and learn a lot, and widen your experience.

Sometimes in project work it is possible for a group to make a trip in connection with their work. For example, a clothing group might make a trip to a texture mill, or cotton or silk manufacturing plant, or go to a large city and study styles, construction in the shops to get new ideas for their own clothing. The other projects offer similar opportunities.

The special activities connected with club work such as demonstration teams, judging or recreation teams require a lot of physical and mental effort but are a lot of fun. The demonstrations may be in connection with the project work. For example my sister and I have been giving a demonstration on selection of color for different types of girls, and color harmony in clothing. We got to make several short trips and it has been a lot of fun.

Judging teams enjoy going around to different places, maybe to meetings of other clubs, and getting practice in judging, whether it be livestock, clothing or bread.

Recreation teams such as organized volley ball or kitten ball team, of course, enjoy their practice periods, and meeting other teams in competition.

The spirit of "to make the best better" is a dominant note in 4-H club activity. We always try to do our project work a little better, develop our heads, hearts, and health more fully, to work harder, have more fun, and to develop a genuine four-fold personality.

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★ AUG 10 1935 ★
U. S. Department of Agriculture

THE SUMMER LAMB AND WOOL OUTLOOK

A radio talk by Morse Salisbury, Chief of Radio Service, in the Department period of the National Farm and Home Hour, Monday, August 5, 1935, delivered by NBC and a network of 50 associated radio stations.

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The number of sheep on farms and ranges in this country at the beginning of 1935 was the smallest since 1929. The sheep population had been declining since 1931, because of a series of dry years in the range country. The dry period came to a climax with the Great Drought of 1934. Lack of feed and water last year forced sheep owners to sell off millions of head for slaughter.

As a result, the lamb crop and the wool clip this spring were small. The big decrease in the lamb crop was all in the Western States. In the so-called "native" sheep States, the lamb crop was a little larger than last year's and about the same as average.

Now even though the total lamb crop for the United States was the smallest in 6 years, the number of lambs sent to market and slaughtered in May and June was very large, in fact the largest on record. That means that the number of lambs still to move to market this year is small.

Another thing: Western feed conditions have been the best in years. So more of the lambs coming in from the Western States this year will be in good flesh and will be sold for slaughter. With more Western lambs than usual ready for slaughter, and with owners holding back more than usual of the ewe lambs for breeding purposes, there will be fewer feeder lambs offered to men in the feeding business.

However, the economists do not look for a heavy demand for feeder lambs early in the season. Most feeders lost money on their operations last season, and won't be likely to be so keen about going into it again. But later on, when prices of fat lambs hold up, and it becomes apparent that the number going to feedlots is small, probably feeders will again take interest, especially in sections like Colorado where hay and feed crops are good this year.

The upshot of the whole situation as foreseen by the economists will be that the supply of fed lambs going to market in the early part of the season (from December through April) will be relatively small during the early months. Also, for the whole season, the number of fed lambs offered to packers will be much smaller than in any season in several years.

The smaller supply of lamb will be offered to a consumer market where the demand seems to be improving. Business prospects would indicate that people will have more money to spend for food and other things, and they will be offered less pork and beef than in recent years. However, consumers in general are not inclined to substitute lamb for pork as readily as they will substitute beef; hence beef prices will probably be affected more than lamb prices by the prospective shortage of pork.

(over)

But in spite of that fact, the economists look for lamb prices to advance somewhat in the next few months from the levels of late July; and for lamb prices from December through April to average higher than in the same season of last year.

Well, that's that on the lamb outlook. Now for wool. With fewer sheep to be sheared, 1935 wool production of the United States was smaller than 1934 production. Reports also indicate some decrease in foreign production. Furthermore the stocks of wool on hand in this country are smaller than a year ago. American mills used much more wool during the first half of 1935 than in the same months of 1934. Although economists do not foresee mill consumption keeping up at the high level of the past six months during the remainder of the year, they do think it will be heavier than in the last six months of 1934. They expect domestic wool prices to be well maintained during the remainder of the year.

Finally the report comments on the long-time outlook for sheep production in the United States. If there is increase or decrease in sheep numbers it will probably occur in the Western States, because for several years sheep numbers in the "native" States have held about the same year in and year out, and all agree that there won't be much fluctuation in those States for the next few years.

Range and feed conditions in the West this year are much better. Prices of sheep are too. In view of these conditions, the economists think that the decline in the number of sheep that has been going on for five years will come to a halt. They find it probable that the number of stock sheep in the United States on January 1st, 1936, will be no smaller than on that date this year. It may even be larger.

From that time on, if feed conditions continue to improve, or to stay as good as they have been this year, the economists look for steady annual increases in the number of sheep. But they point out that sheep numbers depend to a great extent upon the use allowed and the carrying capacity of the range in the public domain and the forest reserves. These ranges have suffered greatly during the drought years. The use of the range on the public domain has now, under the Taylor Grazing Act, been put in control of the Grazing Administration of the Department of the Interior; the use of the range in the forest reserves is controlled by the Forest Service. These agencies will administer grazing so as to allow for recovery of the ranges. If weather conditions are favorable, they will be able to permit owners to graze increasing numbers of sheep; but if weather conditions are not favorable, they will have to hold down the number of sheep permitted to use the range. Thus, the weather and range conditions, and the consequent grazing regulations affecting the public range, will determine whether or not sheep numbers expand in the next few years.

There you have some of the highlights of the summer sheep, wool, and lamb outlook report issued by the Department of Agriculture. Any listeners who wish the full report may get it by sending their requests to the Bureau of Agricultural Economics, Washington, D. C.

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PLANNING IN DAIRY RESEARCH

A radio interview between John R. Fleming, Assistant Director of Information, and Morse Salisbury, Chief of Radio Service, broadcast Tuesday, August 6, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

----oooOooo----

GAPEN:
Another research report today. John R. Fleming, assistant director of information for the Department of Agriculture, and Morse Salisbury, chief of radio service, are at the microphones. Mr. Fleming is equipped with some brownish folders, contents unknown to me, and it looks as if we'll have our research data direct from source. . . .

SALISBURY:
Don't scare 'em away, Ken Gapen. I have seen what's inside the folders, and I can assure the audience there's no statistical bath in store.

FLEMING:
No, I brought these folders along at Morse's suggestion, and I know he stands four-square against bathing -- in statistics. But go ahead Morse and explain your suggestion.

SALISBURY:
All right, Milton.

Here was my idea: We have been flitting hither and thither in these research broadcasts, telling about results of this and that and the other research project of the Department. I thought our listeners might get the idea that research is a hit or miss sort of thing -- when farmers face a particular problem the scientists are given the alarm and they saddle up their test-tubes and spectroscopes and dash off karollop-karollop to help solve the problem.

Now that is true when emergencies arise -- insect or plant disease invasions, disease epidemics among livestock, and so on. But to provide the knowledge that's useful in meeting emergencies and to carry through less spectacular, but more significant long-time programs of cutting farm costs, raising the quality of products, widening markets and reducing costs of distribution, finding new uses for farm products and by-products you must have a plan and a purpose for specific research projects.

Here's the point of asking Mr. Eisenhower to bring the folders: The research work of the Department of Agriculture is planned and pointed toward definite goals. To illustrate how the scientists go about this planning, Mr. Eisenhower will describe the plan for research on scientific problems of the dairy industry.

The outline of the whole long-time plan for dairy research is in those three folders that he has brought with him, Ken. It's not statistical. It

(over)

is a straightforward statement of some major problems of the dairy industry, and the plans of the Bureau of Dairy Industry to find facts that will help solve those problems.

Now, Milton, will you explain how the dairy scientists have classified the problems and organized the research into them?

FLEMING:
I'll be glad to, Morse.

The descriptions of the problems and the plans for research are classified in three major lines. One line includes the problems involved in milk and butterfat production on the farm. They are defined and the plan for getting facts about them stated in this largest folder. The second series of problems are the ones involved in handling market milk. Here's the folder dealing with them. This third one contains the analysis of problems and methods of research in the manufacture of milk into dairy products.

SALISBURY:
Now we're started into the thing. Dairy scientists have organized for research into problems of producing milk on the farm, handling the milk after it is produced, and manufacturing milk into dairy products. Now, suppose you just explain briefly the major problem in one field, and then we can see what the different phases of the major problem are. Let's take the problem of milk and butterfat production on the farm.

FLEMING:
All right. Here's a condensed statement of this problem that the dairy scientists are grappling with. To begin with, there are nearly 5 million farms in the country where dairy cows are kept. On June 1st of this year there were 25 million dairy cows in the country. In recent years the value of the milk they produce has been greater than the value of the products of the automobile industry, and only slightly less than the value of the steel industry's products.

But few if any of the five million owners of dairy cattle can afford to set up research into scientific problems of production, to find the facts that will enable them to turn out, at least cost, a quality product. So the Federal and State Governments have set up research units to find such facts and extension services to place those facts in the hands of the dairy farmers.

SALISBURY:
That's a service to all who consume as well as all who produce milk.

FLEMING:
That's why the governmental units undertake it -- to serve the whole public.

SALISBURY:
Now what is the main problem that faces farmers and scientists in the field of milk production?

FLEMING:
To find methods of increasing the production per cow, so that costs will be cut. That doesn't mean raising total production -- it means enabling

farmers to produce the total pounds of milk needed by their market at the least cost per pound. That is true economy. As it is now, probably a third of the 25 million cows on farms do not produce enough milk to pay for their feed; another third about break even; and only the remaining third definitely do more than pay for their keep.

That indicates something of the extent of the problem. But there are other angles to it. To put them all together, the dairy scientists have made this statement of the objects of their research in milk and butterfat production of dairy cows. (I'll read it out of this folder.)

"To discover improved methods of breeding, feeding, pasturing, housing, management, testing, and judging of dairy cows, that will help the dairy farmer make his business more efficient and more profitable; that will make it possible for the dairy farmer to produce a product that will be most beneficial to the consumer from the standpoint of quality, safety, and nutritive value; that will make it possible for the dairy farmer to produce products so economically that they can be sold at prices that will be well within the buying range of the consumer; and that will best maintain the health and vigor of the herd and the fertility of the soil."

SALISBURY:
Whew-w-w. . . That is a long-time program.

FLEMING:
Quite.

SALISBURY:
Well, now, let's break it down into smaller units. How many main sub-problems are they working at?

FLEMING:
Six.

SALISBURY:
Would you describe each briefly?

FLEMING:
Well, each one is a story in itself, of course. The first is the problem of inheritance of milk and butterfat production. Second, the problem of the physiology of milk secretion and reproduction. Third the problem of relation of the cow's bodily conformation to her producing ability. Fourth, the problem of the effects of proteins, minerals, vitamins, and other basic elements of nutrition on milk secretion and the health of the cows. Fifth, the problem of the influence of feeding and management on the cost of producing milk and also on the growth of the cows. Sixth, the problem of finding from study of dairy herd-improvement association records the effect of different methods of breeding and feeding upon the milk production of individual cows, and the cost of producing milk.

SALISBURY:
How long have these various projects been carried on?

FLEMING:

For different lengths of time. Let's see here. . . . . The study into inheritance of milk and butterfat production started in 1918; the one on physiology of milk secretion and reproduction about 1926; the one on relation of conformation to producing ability about 1922; the one on nutrition in 1915; the one on feeding and management in relation to cost of milk production in 1912; and the analysis of herd-improvement association records in 1910.

You understand that each one of these main work projects includes several individual researches.

SALISBURY:

Oh, yes. We've had reports from a number of the members of the Bureau of Dairy Industry staff as different individual investigations were completed. For instance, T. E. Woodward has told of the results of experiments in feeding cottonseed, showing it doesn't have the harmful effects in the dairy ration it was thought to have; he's also told us about results of experiments into time of milking and how often to milk each day for economical production; Dr. McDowell has told us about results of those studies of herd-improvement association records, and so on.

Now another thing I think you might make clear: Are all these research projects carried on at the Department experimental farm at Beltsville, Maryland?

FLEMING:

By no means. Many of them are. Especially the ones dealing with such seemingly abstract scientific questions as the physiology of milk secretion.

SALISBURY:

If I may interrupt I'd like to say that that isn't such an abstract question, even "seemingly." A random memory just happened to bob into my mind of a paragraph in the 1935 Yearbook of Agriculture which said about this: These investigations into the physiology of milk production have shown that the cow secretes milk continuously, except when fright, or pain, or the internal pressure of milk within a full udder interfere. The investigations also revealed that practically all of the milk obtained at one milking is in the udder when milking starts, rather than being secreted during the brief period of milking. Those discoveries led to further experimental work which has shown that incomplete milking does not cause udder troubles nor tend to dry off the cows quicker.

The paragraph in the yearbook ended with the comment that The information disclosed by this piece of research may lead to discontinuing the laborious chore of stripping after machine milking.

Sorry I interrupted.

FLEMING:

Not at all, Morse. That was an apt illustration of the fact that no

piece of research can be labeled tomfoolery. The seemingly abstract "pure" science often produces strikingly practical results.

But to get back to this question of where the investigations are carried on: As I said some of the pieces of research requiring the most equipment and the cooperation of many people trained in technical lines are carried on solely at Beltsville Farm and in Washington. But most of them are conducted in part here at headquarters and in part at the field stations of the Dairy Bureau in 10 different States. And some of them are carried on in cooperation with many State experiment stations. For instance, that project for investigations into how dairy cows inherit the ability to produce much or little milk enlists cooperative efforts at the main Federal Station, all the field stations, and 10 State experiment stations.

SALISBURY:

I recall that five years ago R. R. Graves and J. R. Dawson presented six of the superintendents of field stations who are working on that and other projects. They told this audience of the startling results that have been obtained by continually using sires proved capable of transmitting to their daughters the ability to produce large quantities of milk and butterfat. That experimental work is revolutionizing theory and practice in breeding dairy cattle.

FLEMING:

Indeed it is. Mr. Reed, the chief of the Bureau of Dairy Industry, told us something about it in the research broadcast on problems of genetics two months ago.

SALISBURY:

We won't have time to go further into that fascinating but involved subject -- how to discover the dairy sires that are "homozygous" as the geneticists say, for high milk production, and how to use them in a system of breeding that will without fail increase the production of the herd. But we might have time for a report on one or two of the new things coming out of the project for investigation of nutrition of dairy cattle. Do you call to mind significant recent results in that line?

FLEMING:

A number of things come to mind. That's the second largest work project in this line of dairy investigations, you know. But I think the most interest has been shown recently in the results obtained by Dr. E. B. Meigs in his studies of the effect of lack of vitamin A in roughage fed cows. Dr. Meigs has established that Vitamin A is associated with the coloring matter -- carotene it's called, in the grasses grazed or fed as hay. He has established preliminary carotene values for various feeds, such as fresh green alfalfa, fresh green Kentucky bluegrass, alfalfa hay of different grades, timothy hay of different grades, corn silage, and so on. When his tables are perfected, it will be possible to rate the vitamin A value of different feeds without going through a laborious process of biological assay using laboratory animals, for the presence in feed of this carotene can be found by chemical analysis. It's the chemical substance in feeds that the cows and other animals convert into vitamin A in some obscure physiological way.

SALISBURY:
So what? You haven't told us why it's important to know the vitamin A, or rather the carotene value of roughages.

FLEMING:
I did sort of get the cart before the horse. Well, Dr. Meigs conducted experiments over several years, feeding cows roughages relatively high in carotene, such as No. 1 alfalfa; and other cows roughages low in carotene such as No. 3 timothy hay. That was the only difference in the rations of the two lots of cows -- one got No. 1 alfalfa; the other No. 3 timothy. And of course neither lot got any grazing, because that would have furnished them both much carotene. Well, under these controlled conditions, the cows fed the No. 1 alfalfa stayed in good health, reproduced satisfactorily, and yielded more than average quantities of milk for periods up to 7 years.

But the cows fed No. 3 timothy never survived nor remained capable of reproducing for more than 3 years. Furthermore, calves fed milk, under controlled conditions, from the cows fed No. 3 timothy failed to grow satisfactorily, and died before they were six months old.

SALISBURY:
What's the practical application of those and the other results of Dr. Meigs's experiments?

FLEMING:
One practical application is to be sure the cattle receive roughage of high carotene content during the seasons when they are not on pasture. Various experimenters, including the men in the Bureau of Dairy Industry, are trying to find the most practical way to make green grasses into silage and thus provide winter feed of the highest carotene content. But the work isn't finished. For the details of making up practical rations that contain roughage of highest carotene content I'd refer listeners to the county agents and the State extension services.

SALISBURY:
Well, I guess we'll have to drop this interesting report here, Milton. Wish we had time to go on into the analysis of the organization for research into problems of market milk and of making dairy products, but we don't.

FLEMING:
Some other time maybe. But I understand next week we're to report on the recent progress made in the search for improved methods of fighting insects with chemicals.

GAPEN:
Well, we'll look for you both next Tuesday at this same hour.

Farm and Home listeners, you have heard John R. Fleming, assistant director of information, and Morse Salisbury, chief of radio service, reporting on the way in which the dairy research of the Department of Agriculture is organized to deal with fundamental problems of the dairy industry.

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SUMMARY COTTON CROP REPORT

A radio talk by Morse Salisbury, Chief of Radio Service, in the Department period of the National Farm and Home Hour, August 8, 1935, broadcast by NBC and a network of 50 associate radio stations.

--ooOoo--

A United States cotton crop of 11,798,000 bales is forecast by the Department of Agriculture, based on conditions as of August 1. If realized this will be 2,162,000 bales more than last year's crop, and 1,545,000 less than the average of the last five years. The average yield for the United States is forecast at 198.3 pounds per acre, which is 21.2 pounds of 12.0 percent more than the average from 1924 to 1933. Condition is reported as 73.6 percent of normal, compared with 60.4 percent last year, and the ten-year average of 68.7 percent. The indicated yield per acre is above average in all major states except Arkansas, Oklahoma, and Tennessee.

Although the present growing condition of the crop is more favorable than usual, the crop is from one to two weeks late along the northern portion of the Belt. It is also later than usual in portions of the Delta sections of Mississippi and Arkansas where planting was delayed by unfavorable weather in the spring and growth in June was retarded by relatively cool temperatures.

In interpreting reported condition in terms of probable yield per acre the Crop Reporting Board has made allowance, as in the past, for probable loss due to boll weevil on the basis of reports received to date concerning weevil presence and activity. These reports indicate that loss from this source will be about average, and somewhat greater than in either of the last two years.

Secretary Wallace today stated that "adequate credit facilities" would be made available to cotton farmers for the orderly marketing of the 1935 crop.

Commenting on the crop report, the Secretary said that if world consumption maintained present levels, foreign and domestic mills could be expected to require considerably in excess of eleven million bales of American cotton.

The Secretary further pointed out that the stocks of cotton held by the government amounting to approximately 5,000,000 bales would not be available to purchasers except at a price in excess of 13 cents and therefore this cotton would not be in competition with the new crop until prices reached that level.

"The Administration sees no cause for anxiety in the present crop estimate. There are ample resources available to carry the present stocks financed by the government for an indefinite period," the Secretary said. He added that if when the new crop began to move in volume there appeared to be a tendency for prices to be depressed, the Administration would not hesitate to offer ample loans that would immediately absorb excess supplies.

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INCREASED 1936 WHEAT PLANTINGS FOR CONTRACT SIGNERS

A radio talk by Kenneth M. Gapen, Radio Service, broadcast in the Department of Agriculture period, National Farm and Home Hour, Thursday, August 15, 1935, by NBC and 50 associated stations.

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Here is an announcement from the Agricultural Adjustment Administration of particular importance to wheat contract signers.

The Agricultural Adjustment Administration is providing for an increase of 5,200,000 acres of wheat in plantings of contract signers for the 1936 crop, over the planting requirements tentatively set two weeks ago.

Under this provision, the requirements on plantings have been modified so that contract signers may plant for 1936, a maximum of 95 percent of their base acreage. That compares with the tentative maximum of 85 percent indicated in the announcement of the new wheat program on July 31.

This step is taken primarily to assure domestic consumers, of continued ample wheat supplies, and in addition, is expected to benefit farmers by placing this country in a strengthened position in the world export market. This is considered especially important in view of smaller world supplies of wheat. The production on this increased acreage, is expected to serve as an offset to the decrease of 123 million bushels in the Federal wheat crop estimate from July 1 to August 1, as shown by the crop report made public last Friday.

In addition to the protection available to farmers through adjustment payments, Adjustment Administration officials believe, that if 1936 brings unusually large wheat yields, adequate powers are contained in the pending amendments to the Agricultural Adjustment Act, to meet any situation which might arise. The new contract provides that adjustment in subsequent years may be as much as 25 percent of the base acreage.

The new four-year wheat contract is expected to be ready to offer to farmers by the end of this month, Mr. Farrell said.

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SEEKING NEW WEAPONS FOR FIGHTING INSECTS

A radio interview between M. S. Eisenhower, director of information, and Kenneth Gapen, Radio Service, broadcast Tuesday, August 20, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

--ooOoo--

GAPEN:

Hello everybody. Well, another research report today from M. S. Eisenhower. This report is somewhat different from other recent reports. In most of them, we have been giving the results of research projects that had been completed. Two weeks ago we departed from that pattern, to indicate how research is organized, and pointed toward definite goals. Today we have another story of similar type, but its main point is that we are making progress by finding out what won't work in a practical way, and proceeding thus toward the positive objective, of finding something that will work.

The research we are to report today, is a part of the battle between fruit and vegetable growers and the insect enemies of their crops. The growers, with the help of science, have so far, managed to keep a precarious upper hold on the insect pests. If they didn't, the millions in our cities would find eating, much less a pleasure to the palate, and more of a pain to the pocketbook, than it now is.

Because of rigid quarantines maintained by the Government to prevent entry of foreign pests of fruits and vegetables, our growers escape some of the pest control problems that face growers in other countries, and our people therefore are able to enjoy better products at lower prices. However, enough pests are already firmly established in this country beyond hope of eradication to give growers and scientists plenty to cope with. Fruit growers face an especially pressing problem in control of the codling moth, although plenty of other insects like the curculios, the scales, and so on, give them enough to think on so life never grows dull. Likewise vegetable growers have plenty of opportunity to sharpen their wits, in the battle with the many different worms, aphids, and what not.

Mr. Eisenhower is going to report today on the research designed to help growers develop substitutes to use in place of arsenicals, especially lead arsenate. Milton, I think a good starting point for your report, would be an explanation of why the scientists are searching so diligently for chemical or other methods of pest control, to replace the use of lead arsenate.

EISENHOWER:

All right, Ken.

Everyone who grows fruits and vegetables knows that for 30 or 40 years, lead arsenate has been the standard chemical for control of the chewing insects. As the population of some of these insects, and especially of the codling moth, has increased, the amount of lead-arsenate-spray necessary to put on the trees to control them has also increased.

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Now; medical men are agreed that if a human being takes in even tiny amounts of lead or of arsenicals each day, the result will be cumulative poisoning. Therefore, to guard the public health, food and drug officers of the Federal and State governments have set up requirements that bar from the markets fruits or vegetables carrying enough of these chemicals to menace human health.

So the growers who have to apply lead arsenate -- to check complete waste of their crops by such destroyers as the codling moth -- have to turn around at harvest time and remove the spray residues from the fruits and vegetables and that costs money. It is bound to cut the returns to the grower and raise the price to the consumer.

GAPEN:

So, naturally, the entomologists and chemists have set out to find other materials that will control the insects, but yet not leave a spray residue that must be removed to protect the public health.

EISENHOWER:

Precisely. That is one reason. There is another: which is that lead arsenate is not completely effective against several insects. So even if there were no spray residue problem, the scientists still would be looking for improved insecticides or for non-chemical methods of control which would give better results for the same or less expense.

GAPEN:

Well, now that we can see the great need for finding better methods in fighting fruit and vegetable insects will you give us that report on progress made in the search?

EISENHOWER:

I'll hit the high points. The scientists have done an immense amount of work in the past few years. The progress made up to the present season is reported in the 1935 issue of the Yearbook of Agriculture. B. A. Porter makes the report on results of research in methods of control of tree fruit insects and D. J. Caffrey, the report on results of research in methods of control of insects attacking vegetables and small fruits. Both men are staff members of the Bureau of Entomology and Plant Quarantine. Both point out that pressing this search with vigor is a prime obligation of the Bureau.

GAPEN:

Just how have they gone about their job?

EISENHOWER:

Well, they have followed two main lines in investigation. One line involves trying out methods of keeping down insect population that will not require application of chemicals to foliage or fruit. To give you an example, the men working on fruit insect problems have tried placing chemically treated bands around the trunks of apple trees so that the "worms" of the codling moth seeking shelter under the bands during the season will be killed. In the spring they remove the old bands before the insects start multiplying and apply fresh ones. They have found that this helps to keep down codling moth numbers and reduce the amount of spray required. They also have tried and found effective certain orchard sanitation methods and the disinfection

or screening of packing sheds and other winter hibernating places of the moths.

GAPEN:

Well, that's one line of research -- trying out control methods which don't require application of chemicals to the foliage or fruit. Now -- what's the second main line?

EISENHOWER:

Trying out chemicals other than lead arsenate for dusting or spraying.

GAPEN:

And I suppose they must find out whether a chemical gives as good control as lead arsenate, whether it costs as much to apply -- . . .

EISENHOWER:

And whether the residue left on the fruit must be removed to safeguard the public health.

GAPEN:

Naturally. Now what other chemicals have they tried out?

EISENHOWER:

They have tried calcium arsenate. . .

GAPEN:

But that's an arsenical, Milton.

EISENHOWER:

So it is; but calcium -- the element combined with the arsenic radical is not as toxic to human beings as lead is.

GAPEN:

I see. Go ahead with the list. You've named calcium arsenate as one substance tried out. What were the others?

EISENHOWER:

Compounds containing fluorine, notably cryolite; nicotine in various mixtures; compounds made from derris and cube; and pyrethrum.

GAPEN:

How do they test these chemicals?

EISENHOWER:

First, in the laboratory, they place the chemicals on foliage of the plants that are attacked by the insects; they feed the poisoned foliage to insects, and then they see how the kill of insects by fixed quantities of the chemicals under trial, compares with the kill by comparable quantities of chemicals now used.

After the laboratory trials they try out the chemicals under actual orchard or garden conditions.

GAPEN:

Suppose you summarize the results with the chemicals that have been given the most thorough trials.

EISENHOWER:

All right.

GAPEN:

Let's start with calcium arsenate.

EISENHOWER:

Less effective against the codling moth than lead arsenate; and more likely to injure foliage of the apple trees. But the investigations are continuing, even though first results are not so promising.

GAPEN:

How about the fluorine compounds?

EISENHOWER:

Of course, they must be removed from products before the products are put on the market, because fluorine is toxic to human beings. However, in the Pacific northwest, cryolite, one of the fluorine compounds, gave better control than lead arsenate at less cost. It didn't do so well in the middle west and the east. The reason for the difference is climate -- cryolite works best in the drier climates.

GAPEN:

But the problem of removing the residue still persists?

EISENHOWER:

It does. And the scientists are working on that.

GAPEN:

Well, that's that for the fluorine compounds. How about the nicotine experiments?

EISENHOWER:

Well, they started with knowledge that nicotine is highly poisonous to insects. But it evaporates and washes off very readily. Also not much is known about its toxicity to humans.

GAPEN:

So they are investigating that point, eh!

EISENHOWER:

Yes, and meanwhile are trying to find some way of compounding nicotine with other substances so that it will not evaporate or wash away so readily. They've had some encouraging results. A combination of nicotine with oil emulsion has even been used on a small commercial scale, but several practical disadvantages have shown up. I won't take time to report them --but let me say that interested orchard owners can get reports on these experiments from the Bureau of Entomology and Plant Quarantine.

The other methods that have been tried for making nicotine stick on the foliage are a combination with tannic acid and with bentonite. Summing up the results of the work with nicotine, Porter reports that "there is every reason to believe that further work may result in the development of practical and economical ways of using nicotine."

GAPEN:

Well, now you've told us about experiments with arsenicals other than lead arsenate, and with nicotine. The third group of chemicals under trial is products of derris, cube and pyrethrum.

EISENHOWER:

Yes. Well, the roots of derris and cube contain rotenone. You've had several reports on the work with rotenone.

GAPEN:

Yes, we have. At the time of the last report here, it was stated that the rotenone compounds are unstable in sunlight and therefore not of practical use until they can be combined with other substances that will make them more stable.

EISENHOWER:

That's still the situation. Also, their toxicity for human beings is not known; but the scientists think that that problem can be licked if the rotenone compounds can be stabilized for use in sunlight, and their cost be made comparable to the cost of lead arsenate.

GAPEN:

How about pyrethrum?

EISENHOWER:

That's the substance extensively used in fly sprays. But its constituents are also unstable, and the scientists are looking for ways of keeping pyrethrum toxic on fruit and foliage for longer periods.

GAPEN:

Now Milton - I wish you would sum up the results of the experiments so far made with substitutes for lead arsenate?

EISENHOWER:

I think the best summary I could give would be that made by Porter in concluding his Yearbook statement. He says this:

"A generally practical substitute for lead arsenate has not yet been developed for use in control of the codling moth and other fruit insects.

"On the other hand, many of the materials now under experiment possess the first essential, a high degree of initial toxicity to insects, and there is every reason to believe that methods will be worked out whereby some of these, or other materials as yet untried, will ultimately be developed into effective and unobjectionable substitutes for lead arsenate."

GAPEN:

Now Milton, I see that we've run almost up to quitting time for this report, and we can't go deeply into the work that Caffrey reported on -- that is, methods of controlling vegetable insects without using arsenicals. But, I know our listeners would appreciate a brief survey.

EISENHOWER:

All right, then. To begin with, the general procedure of research into ways and means of eliminating arsenicals from vegetable growing practice is the same as in the fruit insect work. The scientists are simultaneously investigating two things -- ways of control, such as disposing of crop residues, time of plowing, and so on, that do not require chemicals; and the methods of control by chemicals other than the arsenicals. You go ahead call off the list, Ken.

GAPEN:

All right -- start with cabbage and other cole crops.

EISENHOWER:

The scientists have found that arsenicals can safely be used to kill insects up to the time the cabbage heads form. For killing insects after that, they have had encouraging results from the use of derris-root powder mixed with talc or tobacco dust, from pyrethrum dust mixtures, and hellebore to kill the common cabbage worms. Also, the scientists have determined that it pays to destroy the crop remnants after harvest because they are a source of infestation to new plantings. That is especially important in the South.

GAPEN:

Next -- beans.

EISENHOWER:

For control of the Mexican bean beetle, derris sprays or dusts have given excellent results.

GAPEN:

Celery.

EISENHOWER:

To kill the celery leaf tyer, pyrethrum has proved a specific poison.

GAPEN:

Peppers.

EISENHOWER:

Especially in California, the scientists have had excellent results in control of the pepper weevil simply by destroying the weed nightshade, the principal winter host of the pest.

GAPEN:

Squash.

EISENHOWER:

For the fall grown crops in South Carolina, control of melon and pickle worms has been obtained by using a derris-root powder.

GAPEN:

Turnips.

EISENHOWER:

For control of the aphid attacking turnips in the South, derris-root powder gave good results.

GAPEN:

Tomatoes.

EISENHOWER:

Pyrethrum was tried, but didn't work against the tomato horn worm; but fall plowing was an effective aid in control of this pest.

GAPEN:

No offense meant -- raspberries. (Ha! ha!)

EISENHOWER:

For control of the fruit worm attacking raspberries in the State of Washington, sprays containing retenone were effective.

GAPEN:

Strawberries.

EISENHOWER:

To lessen injury caused by the strawberry weevil, the scientists after trial recommend burning off vegetation within 100 feet of strawberry fields during the winter.

GAPEN:

Those are very brief reports, Milton. Suppose a vegetable grower is interested in spray formulas or dust mixes the scientists have tried out. What would you suggest he do in order to get full information?

EISENHOWER:

That's easy. The Bureau of Entomology and Plant Quarantine has issued a mimeographed statement reporting the results of these various experiments. Send a request for it to the Bureau at Washington, D. C.

GAPEN:

Well, thank you, Mr. Eisenhower. Our report today apparently takes us mainly into a consideration of what research hasn't discovered, and how the research men are laying out their work in order to discover the wanted methods of insect control.

EISENHOWER:

That's right, Ken. This research project for finding better insecticides and control methods has made progress so far mainly by eliminating possibilities; but that is of the essence of the scientific method: try each possibility, discard those proved impossible, and proceed to test others that still are possibilities.

We have made progress when we have succeeded in defining just what the problem is. I hope in the near future to talk with you about some of the absolute unknowns in agricultural science -- situations in which we have defined the problem, but can offer no hint at a solution until fundamental research has disclosed certain facts.

GAPEN:

Thanks again, Milton. Farm and Home listeners, you've just heard a report on some of the fundamental research in fruit and vegetable insect control, and unless the unforseen happens, the next report will be one week from today -- next Tuesday at the same time.

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IMPROVED CHEESE VARIETIES AID MARKET FOR MILK

A radio talk by J. C. Marquardt, Division of Dairying, New York State Agricultural Experiment Station, Geneva, N. Y., delivered in the Land-Grant College Radio Hour, August 21, 1935, and broadcast by a network of 49 associate NBC radio stations.

--ooOoo--

Dairy cattle are highly developed and highly specialized animals. Nature intends that each cow should give only enough milk to feed her own calf. The dairy farmer expects her to produce a surplus of milk beyond the demands of nature to help support him also. The greater the milk production per cow the better the opportunity of profit for the dairyman, for the feed and labor costs of producing each pound of milk decrease as the number of pounds each cow produces increases.

It was largely due to recognition of this fact that the breeds of dairy cattle were developed. Practical dairy farmers, individually and collectively, sought to improve their cattle and in so doing established our present breeds. No new or noteworthy breeds of dairy cattle have been developed in our agricultural colleges, in fact none originated in these United States. I hasten to comment, however, that the efforts of breeders and of agricultural colleges in this country have greatly improved our dairy cattle. It is about the methods used in improving our dairy herd here at Geneva that I wish to speak today.

The Jersey cows from which our herd originated in 1900 produced about 325 pounds of butter-fat per cow per year. For approximately 20 years the herd production fluctuated between 325 and 350 pounds of butter-fat per cow. No gain in production after 20 years of constructive breeding? Knowledge of breeding dairy cattle is today sufficiently advanced to know that permanent progress beyond certain limits should not have been expected years ago. On the other hand, it must be recognized that this production is very creditable. It is approximately double the average production of all cows in the United States and is a good average for the better dairy herds. Since this production was secured by methods readily available to dairy farmers, they are worthy of discussion.

Bull calves were purchased from men who had made a reputation for their skill in developing an outstanding herd. Too much emphasis can hardly be given to this point. A herd of high average production in which there has been little selection gives reasonable assurance of an inheritance for milk production which will be good. The mother of the bull calf was one of the good dairy cows in this herd as judged by her production records, type, and pedigree. Such a bull calf should have an inheritance for production which will approach the average of the herd from which he is selected. This simple plan for the selection of herd sires was followed here at Geneva for about 20 years and the records of the herd were always a credit to this Experiment Station.

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In recent years knowledge of the principles of breeding has been advanced. Testing cows for milk and butter-fat production, and the determination of the production records of the daughters of sires are becoming increasingly popular. The work of the pure-bred breed associations, herd improvement associations, and bull associations is giving information to the breeder of dairy cattle of fundamental value in improving his herd. The application of this newer knowledge and production records is the basis of the increase in production of the Station herd to the present average of 425 pounds of butter-fat per cow per year.

The most certain method if improving herd production is to use a herd sire whose daughters produced much more milk or butter-fat than the average production per cow in the herd in question. The next best procedure is the selection of a bull calf with parentage that has produced superior daughters. Within the herd itself the daughters of the best sires and cows may be used as breeding stock.

This breeding program may be secured in detail by writing to the Experiment Station at Geneva, New York, for Bulletin 645.

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A radio talk by G. J. Hucker, Division of Bacteriology, New York State Agricultural Experiment Station, Geneva, N. Y., delivered in the Land-Grant College Radio Hour, August 21, 1935, and broadcast by a network of 49 associate NBC radio Stations.

--ooOoo--

Of what interest is it to know the number of bacteria in milk? Why do public health authorities ask dairymen to keep the number of bacteria in milk at a minimum? How can laboratory workers count objects as intangible or as numerous as bacteria? Can bacteriologists make counts of bacteria in milk as accurately as chemists can make a Babcock test for butter fat? All these questions are in the minds of interested dairymen today.

Natural milk does not exist free from bacteria. As soon as the milk is drawn from the cow, these tiny plants begin to grow just as seeds grow in a fertile garden. Some kinds of bacteria find milk such a favorable substance in which to grow that they normally completely overgrow the types of bacteria that may be regarded as the weeds. The desirable types are the lactic acid forming bacteria and they quickly overgrow the undesirable bacteria. They thereby bring about the souring and curdling of the milk unless their growth be retarded by cooking or their numbers greatly reduced by heating the milk by the process known as pasteurization.

Food control authorities, therefore, have good reason to ask dairymen to handle the milk in such a cleanly manner that the number of bacteria in the milk at the beginning is at a minimum, and then to cool it promptly and keep it cool. Proper pasteurization again reduces the number of bacteria so that, of both the farmer and the milk dealer have done their part, the customer receives a bottle of milk that is beautifully clean and fresh.

If these two have not done their part the bacteria in the milk grow to such an extent that the milk as delivered is somewhat stale, or in a few cases may actually be sour. If such a thing happens, customers are imposed upon, for they pay for and expect to get a fresh, clean bottle of milk. Unless the milk is actually sour, it is quite impossible for the purchaser, the dairy inspector or even the milk dealer to detect this fraud by an examination of the milk itself. Hence, it is necessary to maintain laboratories in which analyses of the number of bacteria can be made.

It should be noted that this type of control is maintained primarily in order to protect the public against buying a very perishable food that is represented to them as fresh when it may be stale.

It is impossible to give any satisfactory description over the radio of the methods by which bacteriologists count objects as tiny as bacteria. The problem is much like trying to count exceedingly tiny seeds. To count very small seeds you could place a certain weighed amount under a microscope and count the number in the sample. From such a count the number of seeds per bushel could be estimated. Another way might be to plant the seeds on a clean area of soil in the garden and then to count the number of plants

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that grow from the seeds. The two most commonly used methods of counting bacteria in milk differ from each other just as these two possible methods of counting seeds differ from each other.

The first method is usually spoken of as the direct microscopic method and was originally developed at the New York State Experiment Station. Copies of Circular No. 58, which described the method in detail are still available and may be obtained on application to the Station. The second method is called the agar plate method because the soil on which the bacterial colonies grow is agar, a jelly derived from sea weed. This is melted and poured in flat, round glass dishes known as plates.

Needless to state, bacteriologists do not actually count millions, or even thousands of bacteria, even though the result is reported to you as thousands or millions per cc. What is actually done is to find the number present in a small quantity of milk and then to estimate the numbers present per cubic centimeter (15 drops) of milk. The work must be done accurately in laboratories approved for this work or the estimates of numbers may be so inaccurate as to be valueless. Because errors in estimates are easily made, our people here have made a number of investigations to assist those State officials and others who are responsible for seeing that the counts are made by competent men in order to safeguard the interests of dairymen. These investigations are described in various publications from the Experiment Station, one of which (Bulletin 567) is popular in nature and is available for general distribution.

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COUNTING BACTERIA IN MILK

A radio talk by Robert S. Breed, Division of Bacteriology, New York State Agricultural Experiment Station, Geneva, N. Y., delivered in the Land-Grant College Radio Hour, August 21, 1935, and broadcast by a network of 49 associate NBC radio stations.

--ooOoo--

Dairymen the country over are proud of their products. I know that we here in New York State are jealous of our reputation as producers of high quality milk and our dairymen are constantly on the lookout to keep anything from lowering the high standard they have attained for their products.

In order to maintain these high standards, dairymen have their problems the same as any other producers of raw products. The intelligent dairyman anticipates these problems and keeps abreast of new information that will help him solve them. One of the chief worries of Northeastern dairymen at the moment is mastitis. They are asking! Is my herd infected? If so, what must I do? Does the infection endanger my customers? Will I be aware of the infection without special tests? These questions are giving some worry to producers -- and they should.

Mastitis is a disease of the mammary gland caused by a type of bacterium known as "streptococcus." If the infection is acute, the infected quarter of the udder becomes highly inflamed and generally is lost. Fortunately this acute type is relatively rare. The chronic type is more common. It may be present in the udder for several months or even years without any apparent change in the constitution of the milk. Occasionally the inflammation may become slightly apparent with the result that we have a passing case of so-called garget. The gargety condition may clear up but the infection always remains to reappear again, probably at a later date. Nearly all herds have the infection more or less and consequently all dairymen should be aware of its significance. The infection retards milk secretion and lowers the total production of the herd. For these reasons, the disease becomes an important dairy production problem.

We hear of septic sore throat epidemic and inasmuch as they are human infections, they receive considerable notice in the press. These septic sore throat epidemics are also caused by a type of streptococcus and the uninformed and many others who should know better, have been prone to connect these human epidemics directly with mastitis. True, both are caused by the same offending general kind of bacteria -- streptococci -- but the type of streptococci causing human epidemics is different from the type causing mastitis. The septic sore throat kind is a strictly human bacterium and causes an infection in the human throat and when it gains entrance to the bovine udder, remains only temporarily. The garget or mastitis streptococci, on the other hand, are only found in the bovine udder and normally remain there and are passed on from cow to cow. This mastitis streptococcus which is so common the bovine udder, fortunately is not pathogenic to humans as

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far as we can learn from our research at this Station. For this reason, dairymen should be comforted to know that mastitis as such is not the cause of septic sore throat epidemics.

But it is a threat to the dairy business. So many men are asking: What should I do about mastitis if I suspect my herd to be infected?

On the basis of what we know now, here is the answer to that question: Above all treat the herd and the infection the same as any good physician or public health official would treat an infectious disease. Find which cow is infected and isolate her. Consult your local veterinarian, if you feel he is competent, and have him determine the cows which are carrying the active infection and are subject to reoccurrences of garget. Or, if you wish to test your herd yourself, there are methods which you may use and which are economical and fairly accurate. I refer to the use of the strip cup or the brom thymol blue test, the latter, incidentally, developed many years ago at this Station. The use of these two methods of detecting mastitis constitute the most practical approach on the farm to the control of this disease. If you are familiar with these tests, it is useless for me to describe them, if not, send for New York State Experiment Station Circular No. 147. This publication will outline the test and discuss the whole subject better than I can in these short minutes and will also give you a permanent reference book on the subject.

Once you have determined that you have a cow in your herd carrying an active infection of mastitis or given to reoccurrences of garget, it should be isolated from the remainder of the herd or, at least, milked last. At the earliest economic convenience, it should be completely eliminated from the farm. Don't sell it to your neighbor to further infect his herd but make sure that is taken out of milk production. There is no known cure for mastitis. Once infected, always infected, and until more definite information is at hand, the mastitis cow should go. She is a source of infection for the remainder of the herd.

Although the whole problem of mastitis is complicated and the information available rather meagre, we have collected sufficient data at this Station and other research laboratories to indicate that there are practical ways of materially reducing the infection in any herd. These practical methods are outlined in the same Circular I mentioned earlier, that is, No. 147 of the New York State Experiment Station which may be secured free of charge upon your request.

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BREEDING DAIRY CATTLE

A radio talk by A. C. Dahlberg, Division of Dairying, New York State Agricultural Experiment Station, Geneva, N. Y., delivered in the Land-Grant College Radio Hour, August 21, 1935, and broadcast by a network of 49 associate NBC radio stations.

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As a nation, we are large consumers of fluid milk and most dairy products. We drink more milk per person than any other nation. On the average, each of us consumers more ice cream than is eaten by the average individual in any other country. It is good for the health of the nation that this is true. In one dairy product, namely cheese, our consumption is exceptionally low; much less than that of nearly all countries of Europe.

Therefore, it is reasonable to expect that increased per capita consumption of cheese may be one of the noteworthy future developments of the dairy industry. The appetites of other people for a host of varieties of cheese clearly indicate this possibility. An increase in consumption of cheese would materially aid in broadening the market for milk, thus improving prices for milk.

Since 1922, we have been carrying on investigations in cheese making here at Geneva. The aim has been to develop new or improved existing cheese varieties. We have had some success; on the other hand, many projects have not reached the goal set. Probably our most striking results were those secured with cream cheese. In 1928 a patent was issued to us. We assigned it for public use. It embraced a new procedure in cheese manufacture. Two methods have been used from time immemorial to produce curd for cheese, namely curdling of milk by the addition of rennet or by souring. In this newer cheese method, we employed another principle, the coagulation of cream by pressure. Various ingredients are added to cream to give proper substance and flavor. The hot cream is then subjected to the pressure of about 3000 pounds per square inch. The cream becomes solid and, after cooling in the package, is very smooth and buttery.

Manufacturers of cream cheese recognized certain advantages in this newer process. They promptly adapted and modified the method to suit trade demands. As a result of their active promotion and improvement in quality and in flavor variety of cream cheese, the quantity manufactured increased rapidly. In 1932 the amount of cream cheese made in New York State was 11,000,000 pounds more than in 1925 or 1926. This represents an increased market for approximately 4,000,000 pounds of butter-fat each year.

The method is adapted only for use in commercial factories as the cheese cannot be economically made in small quantities.

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We are also conducting experiments to develop entirely new varieties of cheese and to determine if special kinds of European cheese can be successfully altered to suit American appetites. In this type of research there is little to tell until success has been attained. Then the commercial industry makes the final trial of the new product by placing it before the consuming public. If this final judge, the consumer, accepts the product, then the experiments have been of direct monetary value to the producers and other people in the dairy industry.

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1935 COTTON LOAN PLAN

A radio talk by Ken Gapen, Radio Service, delivered in the Department of Agriculture period of the National Farm and Home Hour, over a network of 50 associated NBC radio stations, Friday, August 23, 1935.

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Farm and Home Hour Listeners, the Secretary of Agriculture and the Commodity Credit Corporation announced late yesterday, with the approval of President Roosevelt, that a cotton loan plan would be put into immediate operation on the 1935 crop, which would assure cotton producers an average return of not less than 12 cents per pound on cotton grown in 1935. Here is the first point in the announcement.

The Agricultural Adjustment Administration will make payments to cotton farmers to equal such difference, if any, as may exist between 12 cents and the average price of 7/8 inch middling cotton, as reflected in the 10 spot markets during the period from September 1 to January 1. This period is chosen as covering the harvest months. Such payments as may be made, will be limited to the actual production of the individual producer, up to the amount of his Bankhead allotment. So much for the payment point. Now, what about the loan?

Well, the Commodity Credit Corporation will offer a loan of 9 cents per pound at the farm, without recourse on the borrower. The loan will be offered on 13/16 inch low middling cotton or better. Any grower cooperating in the adjustment program may obtain a loan at once. And the loan plan will permit him to market his cotton in an orderly fashion throughout the year. The rate of loan is obviously substantially below the present or prospective price levels. That's what the announcement says about the new cotton loan.

These offers will apply only to those producers who are cooperating in the 1935 program and who agree to cooperate in the 1936 program. The Agricultural Adjustment Administration tells us that plans for the 1936 program are being developed and that the Administration would continue its efforts, in cooperation with cotton farmers, to adjust production to effective demand, and further reduce the end season carry-over down to normal size.

The Department of Agriculture pointed out that this plan would permit the free movement of the crop into consumptive channels and at the same time protect the producers' income from the crop. With the 1935 crop currently estimated at 11,798,000 bales, officials emphasized that at present levels of world consumption, domestic and foreign mills should require at least 11,500,000 bales of the 1935 crop, and that, with less than 1,000,000 bales of free cotton in the hands of the trade, a strong buying movement should result which would permit the new crop to move readily into consumptive channels.

The Department explains that stocks of cotton held by producers under the 1934-35, 12-cent cotton loan, are not available at present price levels. Producers cannot close out those stocks until the price goes high enough to cover the loan, plus carrying costs, and they probably will not sell unless prices exceed 13 cents.

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The Agricultural Adjustment Administration says that prospects for cotton consumption are much improved as compared with last season. Last month's domestic use was nine percent above July of last year and the general rising tide of industrial activity promises higher cotton consumption through the whole of the cotton season.

The Administration also pointed out the plan as developed, is expected to assure cotton growers of an income of around $700,000,000 for their lint cotton for 1935, exclusive of rental and benefit payments under existing contracts. This compares with an income of $613,000,000 for lint cotton in 1934, $634,000,000 in 1933, and $424,000,000 in 1932.

The Agricultural Adjustment Administration emphasized that one important objective of this plan was to produce the orderly marketing of the crop and that with the free movement of the new crop into consumption, together with the certainty of a strong control program for 1936, the cotton situation appears more hopeful than at any time during the past five seasons.

I have here a special statement concerning the announcement you've just heard, from Chester Davis, AAA administrator. He said today: "The first billion dollar cotton crop since 1929 should result from President Roosevelt's action Thursday in approving the new loan and payment plan for 1935.

"Cotton farmers throughout the South will instantly appreciate the significance for them of the President's action.

"The plan to assure cotton growers an average return of not less than 12 cents a pound, not only promises the best cotton income the South has enjoyed for years, but it also means enlarged outlets for cotton exports, which are of immense importance to the cotton industry."

Mr. Davis' forecast of a probable "billion dollar cotton crop" for 1935 is based on estimates of total farm value of cotton, including any payments necessary to bring the average return up to 12 cents, exceeding $700,000,000, rental and benefit payments under the cotton adjustment program totalling about $126,000,000 and farm value of cotton seed totalling between $150,000,000 to $175,000.000.

"When cotton farmers understand how easily and simply this plan will work," Mr. Davis said, "they will be in no hurry whatever to market this year's crop. The 9-cent loan will assure farmers an immediate source of income. The loan will thus relieve them of any necessity to rush their cotton to market. The plan puts farmers in the strongest possible position to bargain for satisfactory prices."

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MINERAL CONSERVATION IN THE UNITED STATES

(A radio talk by C. K. Leith, of the University of Wisconsin, Vice-Chairman and active head of the President's Planning Committee for Mineral Policy, and of the Mineral Section of the National Resources Committee, delivered Friday, August 23, 1935 on the Conservation Day program in the Department of Agriculture period of the National Farm and Home Hour, and broadcast by NBC and a network of 50 associated radio stations.)

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This is the age of power and of the machine, and minerals are the raw materials for both. It is a highly significant fact therefore that the United States leads the world in the variety and abundance of its minerals. This country uses enough oil, coal, gas, and water power to account for nearly half of the world's industrial energy, which means the creation of wealth at much the same rate. The United States also leads the world in the speed with which it is using up its resources. Since the opening of the century it has used far more minerals than in all its preceding history. Few realize the really huge scale of modern demands. The rate of discovery of mineral resources has now slowed down almost to the disappearing point, and the location and probable size of our reserves are now pretty well known. The known supplies of oil, zinc, and lead seem to be good for about 15 to 20 years; for copper about 40 years. The iron ores will last for hundreds of years, but the high grade ores around Lake Superior, on which we now rely for over three-quarters of our total needs, are limited to 40 years. There are known coal reserves for many hundreds of years, but some of the high grade and favorably located supplies are already far along toward exhaustion.

The relative abundance of the minerals I have named has led to the popular fallacy that this country is self-sustaining in regard to all minerals. The fact is that we lack in whole or in part our requirements of about twenty important industrial minerals, in spite of long-continued efforts to find supplies in this country.

Making liberal allowance for possible new discoveries, our mineral endowment is much more limited than is popularly supposed. When measured in relation to our immense requirements, and in relation to what we hope will be the long life of our nation, the manner of exploitation of these resources is clearly a matter of public concern.

To date the exploitation of minerals has been accompanied by great losses, some avoidable and some unavoidable. On an average, not more than 50 per cent of oil is recovered from a pool, even under efficient recovery practices; where extraction methods are wasteful of gas and reservoir energy, a commonly accepted average is 10 to 20 per cent. In one field a billion feet of gas are being blown into the air daily -- enough to supply the United Kingdom twice over and forty times as much as all the Scandinavian countries use together. As estimated

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by the Bureau of Mines, the average loss in the recovery of coal is 35 per cent, of which 20 per cent is avoidable. The avoidable loss is enough to supply the entire requirements of Germany. The mining of iron, copper, lead, and zinc -- in fact of most minerals -- shows waste, due to the necessity for selective mining to meet competitive price conditions or the burden of excessive taxation. The list of specific losses could be extended indefinitely. Loss of resource is not only a theory or an insignificant incident; it is a fact which can be documented in detail and which runs into large figures. With the physical loss there is inevitably financial loss and depressed labor conditions.

What practically can be done about it? As an abstract idea, conservation of mineral and other natural resources is widely accepted; yet for most people conservation remains only a vague profession of faith not tied down to realities or practical programs. It is often regarded as a problem of hoarding natural resources or of finding scapegoats to punish for the wastes. To specialists in the subject the central idea of mineral conservation is that the impetuous expansion of the pioneer days should, in the public interest, give way to more orderly and less wasteful development. The danger is not absolute exhaustion in some indefinite future, but rather an early increase in cost through unnecessarily early depletion of the rich and accessible deposits. Already signs begin to appear that domestic industries are feeling the pinch of competition and finding it difficult to meet the pressure emanating from countries which are still discovering new resources.

Splendid conservational advances have been made by engineers and scientists in their attack on the physical problems of conservation. The American mining industry has led the world in technical advances, which have furnished the American consumer his raw materials at the lowest unit prices available anywhere in the world. The driving power for this impressive advance has for the most part not been any social concept of conservation, but the practical urge toward efficiency, lower costs, and higher profits.

The real barriers to conservational advances are now the economic and political conditions under which the industry operates, which are damming up the effective application of the best technical methods. To make a long story short, the situation requires a more stable adjustment of production to demand, and more uniformity of price and production conditions, to make possible the planning and application of conservational practices and better labor conditions. The industries concerned have long desired this, but have been handicapped in cooperative effort to this end by the anti-trust laws. The NRA was supposed to permit this attempt, and notable advances in production control were made by the coal, oil, and copper industries. With the destruction of the NRA the problem is squarely before us of providing some legislation which will make it possible for the mineral industries to cooperate in the interest of conservation. I may call attention to the fact that cooperation is already permitted to farmers, laborers, shipping and railroads, under various Congressional acts.

The President's Planning Committee for Mineral Policy, as a member of which I speak, favors some sort of permissive legislation under which the President be given the right to allow voluntary cooperation to any industry engaged in extraction of limited natural resources, if it can make an affirmative case that its wastes are large enough to be matters of public concern, that they are due to a lack of cooperation, that they can and will be remedied by cooperation, that sufficient public supervision will be accepted to insure that cooperation will be used for this purpose and not misused to collect excessive profits. Special legislation for coal and oil, now in its last stages, will allow some such cooperation, but the conservational objectives are not well defined and are overshadowed by provisions of a more debatable kind, which time does not permit me to discuss.

Another important political factor in conservation is taxation. The concept that mineral resources are a heritage of the people is being reflected in rapidly multiplying special taxes, in addition to normal taxes. Whatever their purpose or merit, special mineral taxes are resulting in mounting costs, which for some minerals and some districts constitute a real barrier to the best conservational practice. No practical solution of this problem is yet in sight.

The slowing down of mineral development on the public lands, which started with the passage of the Leasing Act in 1920, applying to only a few minerals, has been a salutory step in the direction of curtailment of production to balance consumption. Our Planning Committee believes that the extension of the Leasing Act over all minerals in the public lands, except possibly for Alaska, would be another step in the same direction.

In planning for conservation we cannot overlook foreign relations. We do not live in a vacuum. By deciding first on our domestic program of conservation, we can then better judge what tariffs may be necessary to protect the situation. History has shown that mineral tariffs, without supplementary means of domestic stabilization, have not brought the desired conservational results.

In conclusion: The job of mineral exploitation on the whole, has been done efficiently and without greater wastes or mistakes than were more or less inevitable under existing conditions of enforced competition and widely scattered ownership of the resources; and the record seems to warrant the presumption that the mineral industries should continue to develop so far as possible under private initiative. However, it is also clear that our mineral heritage is vested with a public interest in certain specific conditions, mainly related to unrestricted competition, which are distinctly detrimental both to the public and to the industries themselves, and which seem beyond the power of the industries themselves to remedy. To be frank, some of us do not think that the brains exist which are competent to produce a fool-proof plan, broad enough to cover all the shifting variables of the conservation problem, but, on the other hand, we are not content with a defeatist or drifting attitude, and hope that cooperative planning will produce some if not all of the desired results.

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BARBERRY - NO. 1 ENEMY OF GRAIN

A radio interview between Morse Salisbury, Chief of Radio Service, and M. S. Eisenhower, Director of Information, in the Department of Agriculture period of the National Farm and Home Hour, Tuesday, August 27, 1935.

SALISBURY:

Tuesday - and M. S. Eisenhower, Director of Information for the Department of Agriculture, again turns the spotlight on the agricultural science and research underlying important agricultural discoveries, programs, and recommendations.

During recent weeks you have heard and read of a black scourge sweeping through the ripening wheat fields of the spring wheat country. In many fields in this home of high-grade bread-baking wheats, thousands of acres of wheat have been badly damaged or destroyed. The outer covering of the stems of maturing wheat plants has burst open to let the sap ooze out. Hot, dry winds have withered the already weakened plants. The wheat grains have shrunk and shriveled. As the combines move through the harvest field, they leave behind clouds of red, powdery dust. Of course, the wheat farmers readily recognize the dread stem rust -- the most destructive of all diseases of the small grains. This year's outbreak probably is the worst since 1916.

The way to control the main losses from stem rust is to eradicate an innocent-looking shrub -- the common barberry. For several years, Federal and State forces have waged a campaign to eradicate barberry bushes in 13 States in the Central West. To hasten the drive against the barberry, around two and a third million dollars has been set aside out of the emergency work relief appropriation for barberry eradication in those 13 and four other States.

Today, Director Eisenhower will give you the scientific story of what the barberry has to do with stem rust, and outline control measures. All right, Milton---

EISENHOWER:

Thanks, Morse --- and hello, everyone.

SALISBURY:

Milton, I suppose a great many folks may have trouble understanding just how a pretty, green bush growing along a roadside or in a fence row, or in the woods, could destroy a crop of wheat in a nearby field.

EISENHOWER:

I suspect they might be even more puzzled if the guilty barberry bush happened to be in the hedge around a lown on Main Street of a nearby town. They might wonder how a barberry bush in the heart of town could possibly hurt a field of wheat out in the country.

(over)

SALISBURY:
Especially if the wheat field happened to be four or five miles away.

EISENHOWER:
Exactly.

SALISBURY:
Well, now, Milton, I wonder if you will give us the scientific explanation of this mystery as you have gathered it from the plant disease scientists of the Department of Agriculture.

EISENHOWER:
Well, the credit for the original discovery -- or maybe I should say, the original observation -- goes not to the scientist but to the wheat farmer.

SALISBURY:
Well, credit where credit is due. Go ahead with the story.

EISENHOWER:
Well, to begin with, I'll give you a little snatch of history. Of course, rust is a very old disease. As much as 250 years ago, European farmers noticed that rust was always worst on the wheat nearest barberry bushes. They felt sure the bushes in some way spread rust. The farmers were so sure of their suspicions that they demanded the removal of all barberry bushes -- either voluntarily or by law. English farmers succeeded in cleaning up the bushes by voluntary effort. Other countries passed laws. I understand the first barberry- eradication law on record was passed in Rouen, France, in 1660.

SALISBURY:
Now that you mention it, it seems to me the early American colonists also passed such legislation.

EISENHOWER:
Yes, they did. In fact, several of the New England colonies passed such laws even before the Revolution.

SALISBURY:
But, as much as we respect the judgment and observations of our colonial forefathers, their suspicions of the common barberry still lacked scientific confirmation.

EISENHOWER:
Yes, but the scientific confirmation came. A German scientist named de Bary unfolded the barberry's part in stem rest in 1865.

SALISBURY:
Well, to bring the story down to practical problems, just how does the barberry bush figure in the present stem rust outbreak in the spring wheat region?

EISENHOWER:

Well, the stem rust goes through four definite, clear-cut stages in its life cycle. It starts in the spring with some little seed-like spores produced on the black stage which lives through the winter. Those little spores sprout and grow just like the seed of a plant. They produce a second stage which can grow in only one place -- and that's on a common barberry bush. The brood produced on the barberry bush then moves to a grass or grain plant, say to wheat, where it produces the third or red-spore stage. This third stage on the grass or grain is followed by the fourth, and final, the black stage on the grass or grain. Only this final black stage can live through the winter of the northern States. In the deep South, both of the last two stages survive the winter.

SALISBURY:

Let's see if I get the practical significance of this rather complicated life cycle.

The black stage of the rust is the only stage that can survive the northern winters. The spores produced by the black stage must find a barberry bush on which to produce a brood of spores to attack wheat and other grains. If they don't find a barberry bush, the rust is blocked.

EISENHOWER:

Exactly.

SALISBURY:

It's blocked just as definitely as a mosquito when you drain, or oil, the water in the rain barrel, or swamps, or other breeding places.

EISENHOWER:

That's a very good comparison.

SALISBURY:

So, by simply cleaning out the barberry bushes, you can control the black stem rust in all sections with cold winters; in other words, in all sections where grain is of large importance.

EISENHOWER:

Well, yes ------- with a slight qualification.

SALISBURY:

Well, in a scientific report, we must be specific.

EISENHOWER:

Well, you remember I told you about the third stage of the rust which can live through the winter in the deep south.

SALISBURY:

Yes.

EISENHOWER:

In the spring, that third stage can make a direct attack on the grain field without having to serve an apprenticeship on the leaves of a barberry

bush.

SALISBURY:
Yes.

EISENHOWER:
Out on the open Plains, the winds carry dust, spores, and so on, for hundreds of miles. Every spring, a certain amount of those third-stage spores blow up from the South into the wheat country ready to make a direct attack on the wheat. In normal years, the southern rust does little damage. So, if the northern sections are free from barberry bushes, they have little to fear from stem rust. But, every so often, in unusual seasons like the present, the rust from the South is a more important factor. But I'll say more about that later.

SALISBURY:
Well, anyway, in the usual year barberry eradication is the key to the control of the main rust losses in the important grain regions.

Now, I wonder if you would outline the main lines of attack on the stem rust.

EISENHOWER:
The attack is proceeding on two fronts.

As the eradication forces push ahead to wipe out the common barberry, the plant breeders are working on new varieties of grain to resist whatever rust may blow in from the South, or from other sources.

SALISBURY:
I understand the breeders are making considerable headway.

EISENHOWER:
They are. I talked over the breeding work, and other research work, on stem rust with Dr. H. B. Humphrey, of the Bureau of Plant Industry. Of course, as Humphrey pointed out, the breeder's problem is by no means simple. If the breeders had only to develop a rust resistant variety, that would be easy. But, in breeding a variety resistant to rust, they must keep all of the rest of the desirable qualities of grain -- such as ability to resist other diseases, high yields, good baking quality, and so on.

SALISBURY:
But, anyway they are developing some rather promising varieties.

EISENHOWER:
Yes. But, at the same time, they have struck another problem. In 1927, a Canadian scientist, Craigie, made an important discovery. Craigie found that, under some conditions, aided by flies and other insects, different varieties and forms of stem rust living on a barberry bush may cross and produce <u>new</u> hybrid forms. These new forms may be more destructive than previous forms.

So, even though you had a kind of wheat to resist previous forms of rust, it might not resist the new forms.

EISENHOWER:
That's the point.

Now, fortunately, those crosses can occur in only one place -- and that's on a barberry bush.

SALISBURY:
Well, it seems to me the basic problem in stem rust control is still the same. You simply have one more reason to get rid of the common barberries. First, clean up the barberries to remove the main source of rust infection in the North; second, to remove the breeding place for new forms of rust which may attack rust-resistant varieties of wheat and other grains.

EISENHOWER:
Yes. Those are the two reasons.

SALISBURY:
Having made that air-tight case against the barberry, I wonder if you would sketch the high lights in the eradication campaign.

EISENHOWER:
Well, a moment ago, I mentioned the early laws against barberry bushes in New England. Those laws were never successfully enforced. The barberry is now too firmly established in the New England States to make eradication practical.

SALISBURY:
Then, of course, in the meantime, folks have carried the barberry westward into the newer important grain-growing sections.

EISENHOWER:
Yes. And, with the barberry went trouble for grain farmers. In 1904, a big stem rust epidemic in this country destroyed millions of bushels of wheat. A similar epidemic destroyed nearly 200,000,000 bushels in 1916.

SALISBURY:
I recall that those losses along about 1916 stirred the wheat industry to action.

EISENHOWER:
Yes. In 1918, at the request of the wheat industry, the Federal government in cooperation with the states, launched a campaign to clean out barberries in the main grain-growing regions of the Mid-West. Since that time, the barberry forces have destroyed roughly 19 million barberry bushes.

SALISBURY:
And, of course, with the destruction of the barberry bushes, stem rust losses have fallen off very markedly.

EISENHOWER:
That's right. As I recall, the average wheat losses from stem rust in the three five-year periods ending in 1919, and 1924, and 1929, dropped from about 50 million bushels, to 25 million, to 11 million.

SALISBURY:
Well, a drop from 50 million to 11 million bushels is quite a drop.

EISENHOWER:
It is. Of course, in the past three years, the losses from stem rust fell off a great deal more because of the drought. They dropped to about three million bushels.

SALISBURY:
But, after that slow, gradual decline in rust losses, the stem rust breaks out again this year like a tropical storm. The wheat men tell me the rust epidemic this year is the worst since 1916. What's the explanation?

EISENHOWER:
Well, you remember what I told you a moment ago. The stem rust infection comes from two sources. By far the greater part comes from the barberry bushes in the wheat sections. With the eradication of barberry bushes, the losses have fallen off tremendously. But remember that certain amount of infection also blows in from the South.

SALISBURY:
But, I thought you said the infection from the South doesn't amount to much in normal years.

EISENHOWER:
That's right. But this present year was not normal. First winter wheat in Kansas and Nebraska suffered a set-back because of a spring drought. Rains came just at a time to encourage a heavy infection of stem rust, if spores were present. Second - On June 23 and 24, strong winds from the southwest drove the spores northward from the winter wheat regions into the spring wheat country. Spring wheat also was late in developing. The infection from the South arrived just at the time when the spring wheat was most susceptible to rust. During the next three weeks, the weather was ideal for the rust to spread. As a result, rust losses in the spring wheat country have been very heavy.

SALISBURY:
So, you can attribute the heavy losses this year to an unusual combination of weather conditions.

EISENHOWER:
Pretty largely, yes.

SALISBURY:
So, this year's outbreak of rust is no reflection on the present methods of combatting the rust.

EISENHOWER:
No. It isn't.

The removal of barberry bushes checks the rust pretty effectively in normal years. What's more, the removal of barberry bushes holds the damage much lower than it otherwise would be in abnormal years such as the present. So, the stem rust forces are moving right ahead to clean up the barberries. At the same time, the plant breeders are still working on new varieties of wheat to resist rust damage. With the removal of the barberries -- the breeding ground for new varieties of stem rust -- they can develop varieties of wheat and other grains to stand up against the present forms of rust infection which blow in from the South. Through a combination of the two methods, wheat losses from rust should be reduced still further.

SALISBURY:
Well, as the new barberry fighting forces provided for under the works relief program move into the field to reinforce the regular barberry forces, I wonder if it wouldn't be a good idea to say a word about the plan of attack.

EISENHOWER:
Well, briefly, the barberry forces search out and locate the barberry bushes on farms, and city lots, in woods and ravines, along roadsides and fence rows, and so on.

SALISBURY:
Then, to kill the barberries, they use common salt.

EISENHOWER:
Yes, that's right.

SALISBURY:
New, just what suggestions would you offer to any of our listeners in the North Central States who know the whereabouts of some common barberry bushes?

EISENHOWER:
Well, first, it might be well to describe the harmful variety of barberry. The harmful variety of barberry -- that is, the common barberry -- has a leaf with tooth-like bristles, or spines, around the edge. On the other hand, the edge of the leaf of the Japanese barberry is smooth. The Japanese barberry is not harmful.

To anyone who discovers a common barberry bush -- that is the barberry with the bristly-edged leaf -- I would suggest that he report the location of the bush to his county agricultural agent or to the state agricultural college. The county agent or college can furnish him further information on how to identify the harmful barberries and how to eradicate them.

SALISBURY:
Well, thanks, Milton.

GAPEN:

And thanks to both of you, Milton Eisenhower and Morse Salisbury, for today's report on the drive against the common barberry bush to control stem rust.

We will look for you back at this same time next Tuesday with another story of agricultural science and research.

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SEP 14 1935
U. S. Department of Agriculture

THE COTTON LOANS

A radio announcement by Morse Salisbury, Chief, Radio Service, broadcast in the Department of Agriculture period, National Farm and Home Hour, Tuesday, August 27, 1935.

Yesterday the AAA announced that the 1935 cotton loan plan had been modified. Here are the three most important changes in the plan:

First, the amount of the loan has been changed from 9 cents a pound to 10 cents. That change gives growers more immediate cash in the event they wish to hold cotton in anticipation of a future price increase.

Second, the lowest grade of cotton eligible for loans has been changed from 13/16ths of an inch low middling to 7/8ths inch low middling. The longer staple cotton named in the new plan is better cotton.

Third, the adjustment payments which guarantee that cooperating producers will receive at least 12 cents a pound, are now based on daily average price in the 10 spot markets instead of on a four-month average of prices from September 1st to January 1st. That change means that growers are to be informed almost immediately after they sell their cotton how big their special adjustment payments will be.

The modified plan, like the first one, restricts loans to cotton actually produced by the borrower, and not in excess of his Bankhead allotment; and also offers loans only to growers who cooperated in the adjustment plan this year and who agree to cooperate next year.

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★ SEP 13 1935 ★
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NEW THINGS IN WEATHER SCIENCE

A radio interview between Morse Salisbury, chief of radio service, and Kenneth Gapen, radio service, broadcast Tuesday, September 3, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

--ooOoo--

GAPEN:

Here we are back in Washington for the Department of Agriculture period of the National Farm and Home Hour. As usual on Tuesdays, we're to have a discussion of what's new in the branches of science practiced by the members of the Department of Agriculture staff. One-half of our usual staff of reporters is missing today, Director Eisenhower being unavoidably detained. So it's up to Morse Salisbury and me to discuss for the information of listeners the things under consideration today.

I'll try to ask Morse the questions a layman would most like to have answered about the new developments in the particular branch of science we're reporting on -- weather analysis and forecasting!

Like everyone else, I fancy myself as an expert in a modest way on weather phenomena, so I believe I'll be able to ask fairly intelligent questions to bring out some of the points all us amateur forecasters need to know about the new methods being applied in making the daily forecasts that we get on the radio and in the newspapers. I think the new method is called air mass analysis. How about it Morse?

SALISBURY:

Correct, Ken -- air mass analysis.

GAPEN:

All right, then -- we're reporting on the application of air mass analysis to weather forecasting. Now, Morse, I'm going to ask you to start by telling us just how new this new method of weather analysis and forecasting is.

SALISBURY:

Well, you might say, it originated in the World War days.

During the World War, Germany was entirely shut off from her usual sources of information about weather conditions in France, and other regions to the west of her.

GAPEN:

So, with the then existing forecasting methods, the Germans didn't know what kind of weather was moving in from the West, where most of their weather originated, until it actually passed inside their borders.

SALISBURY:

That's right.

But, a Norwegian weather scientist had been developing a system to use much more extensively, information about clouds, wind, and pressure gathered from a close network of observation stations within his own country. The data

would give a forecaster a reasonably accurate idea of the weather in store even though he had no information on weather conditions to the Westward. This scientist worked out the practical details of his system in time for Germany to apply it during the latter part of the War. Since that time, the system hasbeen adopted in Norway, Sweden, Germany, Austria, Russia, and other countries.

GAPEN:
And now, the United States Weather Bureau is putting the system into effect.

SALISBURY:
Gradually, yes. But more about that later.

GAPEN:
Well, for the benefit of us non-experts, I expect we had better begin with a little explanation of terms. Specifically, just what do the weather men mean by air mass analysis?

SALISBURY:
This is the way Forecaster Mitchell, and Byers, the air mass analysis expert, and their associates at the Weather Bureau, explained it to me.

At various places in the world, large bodies of air lie fairly quiet or stagnant for long periods of time. You find such conditions especially in the Polar Regions and in the Tropics. As the air lies more or less undisturbed, it gradually begins to take on the moisture and temperature characteristics of the region over which it is lying.

GAPEN:
That is, if the air had been lying for a long time over the Arctic continent, it might become cold and dry. On the other hand, if it had been lying over the surrounding ocean, it might become cold and damp.

SALISBURY:
That's the idea.

Likewise, air over the hot tropical oceans would be hot and moist, while air over the deserts of Asia and Africa would be hot and dry.

Now big sections, or masses, of air are constantly breaking away from those big reservoirs of air around the polar regions, and elsewhere. They drift, or wander, into the temperate regions. For example, in our part of the globe, masses of air drift in upon us from the Arctic region and up from the Gulf and other tropical sections to the south.

GAPEN:
From your description, I judge those air masses behave very much like icebergs which break away from the polar ice floes and drift into the warmer waters.

SALISBURY:
Quite a lot, yes.

In fact, I might carry your comparison a step further. The icebergs drift sometimes hundreds of miles before they melt. Likewise, even though

these air masses drift hundreds or thousands of miles in the temperate zone, they tend to keep the characteristics of moisture and temperature which they picked up in the polar region or elsewhere. From the moisture content, and temperature, and other characteristics, the trained meteorologist can say, "This mass of air originated over the Arctic ocean, or some other area."

GAPEN:
Well, Morse, I suppose on the so-called muggy days we get here in Washington -- that is, days when your clothes stick to your chair and when you can scoop water out of the air with a dipper -- we may be getting a mass of air blown in from the ocean in the neighborhood of the West Indies.

SALISBURY:
It's entirely possible.
Now, as one of those masses of hot, moist air comes rolling up from the South, a mass of cold, dry air may be blowing down across Canada from the Arctic.

GAPEN:
Well, when those two masses of air meet, look out for some unusual weather. Is that right?

SALISBURY:
Right you are.
Now, the most of the time, instead of moving against each other along a straight, well-defined path, the air masses are more apt to maander around. Other wandering air masses may come in from the side. The advancing front lines of the opposing air masses may look pretty scrambled. But, anyway, I have given you the general setting for the most of the day-to-day weather changes and disturbances.

GAPEN:
In other words, the most of our storms, and rains, and so on, take place at the point where a mass of warm air and a mass of colder air come together.

SALISBURY:
Exactly.
I suppose you know why?

GAPEN:
Well, I think I can make a good guess. Obviously, whenever two things run together -- trains meeting headon, or two currents of water or air -- they are bound to produce a certain amount of commotion. So, in the first place, when the two air masses come together, they are pretty likely to set up a general disturbance.

SALISBURY:

Quite right.
That's one reason. There's also a second one; namely, that when warm air and cold air meet, the warm air always rises above the cold air.

GAPEN:
The same way as steam rises from the spout of the teakettle, or hot air rises from a stove, or furnace, I suppose.

SALISBURY:
Yes, you can see the principle demonstrated all around you.
Now, as the warm air rises it cools off. As it cools, the moisture in it tends to condense.

GAPEN:
I get that too -- just as when you blow your warm breath on a cold looking glass, tiny beads of moisture condense on the glass or like drops of water form on the cold walls of a hot, steamy room.

SALISBURY:
Just the same thing. Well now, as the warm, moist air rises along the front where it meets the opposing air mass, it first reaches the dew point. Then, as the moisture condenses still further, light fleecy clouds begin to form -- then, darker and darker clouds. Finally, if there is enough moisture in that mass of air, and if the air cools down enough, the moisture condenses still further and falls as rain, or snow.

GAPEN:
From what little I know of the science of weather, I judge what you have just described is the process that causes "falling" weather. That is, all of our rain, and snow, and other forms of precipitation, are produced by lifting warm, moist air until it cools down enough for its moisture to condense.

SALISBURY:
Exactly.
The weather forecaster's job is to figure just how the various air masses shown on his weather map will act in relation to each other tonight, tomorrow and the next day. Of course, a mass of moist air may rise high enough to produce rain or snow as it passes up over a mountain. Hence, on the windward side of mountains, you often find very heavy precipitation. Or a mass of moist air may become excessively heated near the earth's surface and rise in the form of bubbles. Eventually it may produce local thundershowers. But, as I intimated a moment ago, the most of our storms, and sudden changes in temperature, take place when and where one of those warm masses of air meets a cold mass.

GAPEN:
So, the weather forecaster needs to know all he possibly can about the origin, and nature, and habits of the various masses of air floating around the country.

SALISBURY:
Decidedly so.

GAPEN:
First, I suppose the forecaster must keep very close tab on the movements of the various air masses.

SALISBURY:
Quite true.

The other afternoon, I sat with Byers, and Mitchell, and their associates up at the Weather Bureau, as they studied their map of the air masses for that particular day. A big, invading force of warm tropical air was moving against the Atlantic Coast from the Southeast. The colder air forces were valiantly trying to hold their positions on the coast. At some points, the warm air was able to drive into the cold air territory; at other points, it had to fall back. Down in the Southwest, in the vicinity of Arkansas and Oklahoma, two other air masses were lined up against each other.

GAPEN:
Well, what was the main question the forecasters had to decide? Didn't they want to know, first of all, just how fast the front line, or "front" between those air masses was moving, and in what direction?

SALISBURY:
That's right. I believe you've been studying forecasting on the sly.

GAPEN:
Have to admit five years of it. The thing's always fascinated me -- but I know only enough about it to realize that if the weather men find that the front line of fighting between a warm and cold air mass is apt to move over Washington during the night, I had better know where I can put my hands on my umbrella in the morning.

SALISBURY:
Or on someone's umbrella.

But, speaking seriously, the question of whether you would or would not need an umbrella tomorrow morning would depend on a number of complicated factors. I won't attempt to go into the scientific details; I'll merely suggest their general nature.

For example, just how warm is that warm air mass moving in from the tropics? How much moisture is it carrying? How much moisture is it carrying compared to its temperature?

GAPEN:
In other words, how much will that air have to be cooled before it begins to lose some of its moisture?

SALISBURY:
That's the idea.

Now, of course, that, in turn, immediately leads to a whole series of questions about the cold air mass. How cold is it? And so on.

GAPEN:
Then, I can see a third main problem. If the front line between the warm and cold air does reach Washington during the night, and brings us a storm, which mass of air will hold Washington after the storm passes over -- the warm or the cold?

SALISBURY:

Practical question: Should you wear a light summer suit or an overcoat?

GAPEN:

Well, the weather men certainly have a Chinese puzzle on their hands. But, getting back to our science report: I don't have a clear picture of the difference between a forecast using the new system of air mass analysis, and the previous method of forecasting. The two sound very much alike.

SALISBURY:

You're quite right. Air mass analysis isn't anything radically new. It simply carries the previous methods a few steps further.

GAPEN:

Just what are the main points of difference?

SALISBURY:

Well, air mass analysis is based on information about conditions not just on the ground, but also in the upper air. Until fairly recently, the weather men had to rely mainly on the information from the network of ground observation stations in this country and the rest of the world, and from ships at sea. But information about conditions at the earth's surface isn't enough.

GAPEN:

I think I can see some of the limitations. Even if the weather observers take their observations from the top of a high building, or tower, they get the story of only a very thin film of air compared with the actual height of the atmosphere involved in weather changes.

SALISBURY:

Exactly so.

What's more, the temperature near the ground may be greatly affected by the heat given off from the ground, or from buildings, and so on.

GAPEN:

I suppose, too, the humidity, or amount of moisture in the air observed at a ground station might be greatly influenced by a nearby river or lake.

SALISBURY:

That's right.

Still more important, from their surface observations, the observers might report a cold, dry air mass over Washington. But that cold, dry air might be little more than a thin film. A warm, moist air mass might be driving in over the top of it.

GAPEN:

So, actually, we might have the makings of a storm right over Washington without knowing it.

SALISBURY:
Oh, yes -- that is, if we depended solely on surface observations. But some years ago, the Weather Bureau began to take readings of the upper air with instruments attached to big kites. More recently, they have been cooperating with the Army and Navy in taking airplane readings. Every morning at rooster-crowing time -- four o'clock -- pilots go up to 17 thousand feet with automatic weather recorders in their planes. Commercial and private pilots also are beginning to cooperate by reporting upper air conditions they observe on their flights.

GAPEN:
And from the regular and volunteer upper air observations, the forecaster gets a cross section of the kind of air, and weather conditions, above the earth.

SALISBURY:
Yes, from those observations, the forecaster can tell the particular type of air mass or masses overhead. From what he knows about the nature of air masses that come from the Arctic region, and other sources, he can say, "That air mass came from this or that area." From what he knows about how the various air masses behave when they meet, he can get some idea of the kind of weather to expect.

GAPEN:
So, as you pointed out at the beginning of your report, air mass analysis enabled the Germans to forecast weather fairly successfully without the help of information about weather changes moving in on them from the West.

SALISBURY:
That's right.

GAPEN:
And through the use of air mass analysis, the weather men expect to make forecasting still more accurate.

SALISBURY:
Especially for the short-range forecasts.

GAPEN:
I understand the weather men haven't yet put the new method into full operation.

SALISBURY:
Well of course, the Weather Bureau has to retrain personnel to use the new methods of air mass analysis. To develop the plan, the bureau also must extend the services for getting upper air data. But already, Byers and his associates are preparing a daily air mass map on a demonstration basis. I understand some of the airlines also are putting the plan into effect in making short-time forecasts of weather conditions along their air routes.

GAPEN:
We'll have to leave the subject there; but I hope we'll be able to come back to it in these Tuesday science reporting periods. I can't think of a better conclusion for today's discussion than the weather forecast for: ---------

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★ SEP 10 1935 ★
U. S. Department of Agriculture

NEW NATIONAL FORESTS

A radio talk by Morse Salisbury, chief of Radio Service, delivered in the Department period of the National Farm and Home Hour, Friday, September 6, 1935, and broadcast by NBC and a network of 60 associate radio stations.

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Uncle Sam is making some notable additions to his National Forests. A good sample of the Main Woods, and others of the California Coast Redwoods were established as purchase units at a meeting of the National Forest Reservation Commission last week.

These will be the first National Forests typical of these two great natural Forest regions. Tree lovers everywhere will be glad to know that the U. S. Forest Service has been given the opportunity to preserve and rehabilitate sections of the woods of northeastern Maine and the Coast redwoods of California for the use and delight of present and future generations.

The Commission also approved of purchase of lands surrounding the great Arrowrock Dam in Idaho to save the reservoir from filling up with silt. It established units on critical and overgrazed lands in Utah, lands which in recent years have been the source of floods costly in life and property.

It gave approval to Forest Service purchase of a tract in Michigan to serve the Basswood Community Forest Project and assist the Land Resettlement project in maintaining permanent forest and wood-working industries, giving stable employment to its people and making possible the maintenance of its social welfare. By cooperation of all public and private land owners, the forest will be managed for sustained yields, and not slashed and destroyed, leaving the community to a slow death by unemployment and poverty. Basswood Community is not to become a "ghost town," as have so many of the old lumbering centers which sprang up and prospered for a time only to die when mills managed under the old "cut-out-and-get-out" system moved away and left them stranded in a wasted land.

The Commission also approved purchase of what was described as the "last remaining large stand of virgin hardwoods of the Southern Appalachian type." This tract is in the Nantahala National Forest in North Carolina, near the Tennessee line. The 13,000 acres are mostly covered with great tulip poplars and red oaks. Some of these trees are 6 feet in diameter. One poplar was found to be 76 inches through at breast height.

In the Yazoo delta in Mississippi in the new Delta National Forests, the commission approved the Forest Service purchase of 13,000 acres of fine River bottom hardwoods. Some of the largest gum trees in the South grow here. Logs from these trees find a steady and ready market for furniture and finishing purposes. The Forest Service usually buys cheap land with young growing timber. By buying a tract of mature timber along with the young timber, it plans to have here a fine demonstration of forest management covering all ages of timber and many phases of forest use. It will be a complete forest. And private and public forestry in the South will benefit from study of the scientific methods used on a large scale here.

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Altogether the purchase of 100,958 acres was authorized in five States, so, you see, the Commission had a busy day.

We want to get back to the Maine woods.

The coat of arms of Maine is adorned by the figure of a pine tree. Long ago Maine was nicknamed the "Pine Tree State." Perhaps that was prophetic of the time more than half a century ago when the great sawmills were developed and Maine led the Nation in lumber production. For a time. And then the mills moved West to the Lake States, and successively to the Southern Pine belt and the West. Most of them getting everything convenient out of the virgin forests, and letting the rest lie wrecked to fall a prey to forest fire.

But Maine was the great proving ground. It is a source of pride there, that when the original logging was done, a few trees were left to restock the land, - that devastation by axe and fire was not as complete as in many logged areas farther west. But repeated cuttings, and cullings, and fires even in Maine have led to progressive deterioration of the timber stands. Timber management by the Forest Service in the new National Forest is to reverse this process, build up the stands, and furnish more winter work to those living on the farms and in the small communities round about.

There are stands of spruce, fir, pine, hemlock, beech, birch, and maple covering nearly half of the 795,000 acres in the new National Forest, which is to be called the Grand Lake Unit. The people of Maine, through the Legislature, have approved the purchase by the Federal Government of the 600,000 acres which will comprise the new National Forest. The Grand Lake Unit lies in Aroostook, Penobscot, Hancock, and Washington counties, in a region of large pulp, paper, and diversified woodworking industries. It is a favorite hunting ground. Its lakes and streams abound with fish. And recreational facilities are to be further developed. We will keep the Maine woods in mind. Just another thought about the few samples of virgin forest acquired by the Forest Service. Such forests are mighty scarce in the East. In the West, even in the Redwoods, once the sawmills enter, it is not long until the stand is reduced to remnants, and nobody can tell by the remains what the original virgin forests looked like. Saving and maintaining in productivity important areas of the Redwoods, which took 1,000 years to grow, seem particularly worth while.

And while the Forest Service is saving fine stands of trees and showing how to make timberlands perpetually productive it is lending a hand in the great national problem of taking care of stranded populations and in safeguarding the future of communities and cities. In the Basswood Community Forest Project mentioned, 1500 men find or will find employment in forest work, lumbering, or manufacture of woods products. In cooperation with the Resettlement Administration, and the people of the locality, the Forest Service will work out a plan for continuous scientific harvesting of the timber on 240,000 acres of land and the conservation and improvement of the stands of trees. There seems to be no reason why Basswood Community should not thrive and prosper, and its institutions and welfare endure through the centuries, as long as the well-managed forests continue to grow.

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LIVESTOCK CLUB WORK PUT ME IN COLLEGE

A radio talk by Russell Lehe, Remington Indiana, delivered in the National 4-H Club Radio Program, September 7, 1935, and broadcast by a network of 57 associate NBC radio stations.

Hello fellow 4-H club folks and all you mothers and dads.

Well summer is about over, soon it will be time to start back to school. If you are in high school it means going back to the old gang you've had so much fun with all down through the years. If you have just graduated from high school, you are confronted with the problem of getting a job and going to work; or finishing your education at some college. It is the latter to which you should give very serious consideration.

We hear many saying now "suppose we did look forward to going to college - old man hard times has changed things considerably." I realize full well that dad hasn't made a great deal off the farm the past few years. And mother's garden has done more than its share to balance the family budget. But even so, the fact remains that education is of paramount importance to any young person; and it can be had by anyone willing to work for it.

This brings us right down to "brass tacks" - just how can it be done. My best answer is to tell you of my own experience and cite various instances that help solve many of the problems.

About ten years ago one winter evening dad was sitting by the fire side reading the farm paper. In the course of his reading he noticed that some 4-H club boy had won high honors at a stock show on some pigs. He called my attention to it. Of course, I immediately found out more about 4-H club work, and sure enough next year I was in the pig club. I enjoyed it a lot even though I was very much frightened when I drove my barrow into the show ring. I could hardly believe my own ears when the judge called out my name for third place.

That was how I got started. From that year on I have become more familiar with the various activities which 4-H club work offers. Through my ten years experience in 4-H club work I have participated in every recognized livestock club with the exception of two - the colt and lamb club.

Doubtless you wonder what all this has to do with going to college. In order to accomplish a thing you have to want it more than anything else. To me 4-H club work was a "red hot" primer - it stimulated a desire in me to own and know more about good livestock.

Under the supervision of this organization most club members become acquainted with various college people. Many of them become ideals in one way or another.

Dad, I'll bet you're saying - "ideals do not fatten the pocket-book" - true enough. But just a moment, would you agree that over a period of years a boy who efficiently handles a few livestock projects is pretty sure of building up a small bank account. However, in my own particular case I never had

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very much cash on hand; for I have always preferred investing my money in more livestock.

When you are in 4-H club work you are in a small business. Unknowingly you are establishing in the minds of those persons "backing" you or observing you the potential abilities that you have as a business individual. Before I was 21 years of age I borrowed money from a bank for more than one hundred dollars without my father's signature.

Maybe it won't be possible for you to get enough money together all at one time for your school expense. But here's a tip - if you have shown your ability in 4-H club work chances are you have pretty good possibilities of finding employment at the college to which you go.

I have completed three years of college during which I have been employed at seven different kinds of work. It is a good idea to get experience along as many lines of occupation as possible.

We have another very worth while goal to work for - every year numerous scholarships are awarded for outstanding accomplishments in 4-H club work. The amounts range all the way from fifty to five hundred dollars. Possibly I got more than my share of scholarships, but just to demonstrate what is possible my total scholarship earnings were $1100.00

These points which I have mentioned have formed the foundation upon which I have been able to build my education. I have tried to show in a general way how 4-H livestock projects help make it possible to get a college education.

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WHY I JOINED THE 4-H DAIRY CLUB

A radio talk by Mary Whitehead, 4-H club member, Litchfield County, Connecticut, delivered in the National 4-H club radio program, September 7, 1935, and broadcast by a network of 57 associate NBC radio stations.

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I have always been glad that I joined the Washington 4-H Dairy Club in June, 1929. Why? Well, here are some of the reasons.

In May, 1929 I went to the county 4-H round-up with the rest of my family. My brother and sister belonged to 4-H clubs and I had begun to think I wanted to join, too. The State Club Leader, Mr. A. J. Brundage, was present at that meeting and before the program I told him how I wanted to become a member of the dairy club but couldn't because I was too young. He sympathized with me and said that perhaps I could join anyhow. That night I sat with my brother and the rest of his club and when the State Leader spoke about the little girl in the audience whose ambition it was to join a dairy club----well, maybe I wasn't thrilled. After that it was only a step to be voted into my brother's club.

At that time my brother was secretary of the dairy club and my sister a member of a food and canning club. I wanted to be like them. It's not much fun to be a younger sister and have to stay home when the others go off and have good times. When they did take me with them I felt like an outsider. Young folks like to "go places and do things" even when they are only nine years old.

I have always been more interested in dairy work than in anything else. I learned to milk when I was five. I was always playing with calves or leading them, with some disastrous results. Sometimes the calves would get away from me or get in trouble but nothing very serious happened. It was fun to yoke up a pair of calves in an old ox yoke, hitch them to a sled, and then make them give me a ride. The calves didn't like this scheme nearly so well as I and frequently refused to go or dumped me into the snow. Obviously my interests were in livestock and the out-of-doors rather than in the household, so that is why I wanted to join a dairy club.

It is a natural tendency to want to own something. I could play with my father's calves all I wanted to but they were never mine. As soon as they became cows they were his. Begging Dad to buy me a calf did little good. His answer was always that the novelty would soon wear off and he would be left with another animal on his hands. Club work offered me an opportunity to prove that I would take care of my own animal. "Where there is a will there is a way." I had no money with which to buy a calf but I took four of my father's to the fairs, and, between the prize money and raking hay at ten cents an hour, I managed to get enough money to purchase a purebred Ayrshire calf in October, 1929. Since then I have built up a herd of ten dairy animals. When rural young folks are allowed to carry on a project such as this it helps to keep their interest on the farm and in the country. That is one object of 4-H Club work.

There might well have been other reasons why I joined the 4-H club, though I did not realize them at the time. Some of these might have been to meet more people and get a broader outlook on life. There have certainly been

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opportunities for these in 4-H work. The Junior Short Course and Senior 4-H Club Conference are held at the State College at Storrs for a week every summer. I have been to Short Course once and this year I attended Conference. I had a grand time and learned a great deal.

An annual event for us dairy members is the 4-H dairy judging contest. We go on a two-day tour, visiting different farms and judging at each. Each year I have gone on these trips and have learned more about judging and placed a little higher. This year I placed first in the County and am one of three contestants from our county to go to the Eastern States Exposition at Springfield, Massachusetts, on September 20 to try for the New England Championship.

I have shown my animals at County and State 4-H Exhibits. In 1933 and 1934, I was lucky enough to own one of the animals that was selected to represent Connecticut in the 4-H Class at the Eastern States Exposition. This was quite an honor, as only ten can go from the state. The week was full of new and renewed acquaintances. I met many 4-H'ers from the New England States and New York. I had such a marvelous time I hope to be able to go again this year.

I owe a great deal to my parents, leaders and friends, who have made club work possible for me in the past six years. If it had not been for them, I would never have derived the benefits and enjoyments from Club Work that I have. I have always been glad that I joined the 4-H club when I did and I hope to continue with the work many years longer.

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BETTER CATTLE FOR THE SOUTH

A radio interview between Morse Salisbury and Kenneth Gapen, Radio Service, in the Department of Agriculture period in the National Farm and Home Hour, Tuesday, September 10, 1935.

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GAPEN:

Hello, everybody. I am sorry to report that Director Eisenhower is unable to be here for his regularly scheduled Tuesday broadcast. In his absence, Morse Salisbury, Chief of the Radio Service, will give you today's review of important new developments in agricultural science and research. I will step into Mr. Salisbury's customary role of interrogator.

Looking backward a moment. In one of the first broadcasts in this series, Mr. Eisenhower, and Mr. O. E. Reed, chairman of the Department's committee on genetics, outlined the vast unrealized possibilities in plant and animal breeding. At that time they sketched for you plans for a long-time program to produce more efficient and profitable forms of crops and livestock. Since that time, Mr. Eisenhower and other speakers have talked with you about specific breeding problems and accomplishments. Now, today, Mr. Salisbury has for us a report on results of some of the breeding work with beef cattle.

In general, the Department, State, and private breeders are trying to develop beef animals to produce meat more efficiently and cheaply. But, in one important section of the country - in the deep South, they must go a step further. They must breed into our present lines of cattle increased hardiness for southern conditions. But that's Mr. Salisbury's story -- All right, Morse.

SALISBURY:

Thanks, Ken Gapen - and hello, everyone.

GAPEN:

Morse, I believe you told me as we walked into the studio, you wanted to make an important announcement.

SALISBURY:

Yes, I did. I want to make a birth announcement.

GAPEN:

So far as I can remember, we've never before announced births on the Farm and Home Hour. But I suppose we could make an exception.

SALISBURY:

Well, this announcement is from the agricultural experiment station at Jeanerette, Louisiana. The Department's beef-cattle men at Jeanerette have announced the recent birth of six or seven beef calves.

GAPEN:
You seem most casual about numbers. What are they, septuplets, or something like that?

SALISBURY:
No, nothing like that. All of them were born singly.

GAPEN:
Well, in this age of multiple births, what possible claim do those single born livestock youngsters have to fame?

SALISBURY:
Simply this. On their dam's side, these new-born calves are from a long line of registered, purebred Aberdeen-Angus. But their sire--and this is their claim to distinction -- Their sire is an Africander, a member of that hardy breed of cattle developed in hot, tropical Africa, at a time when it was heavily infested with insects. The Africanders were introduced into this country nearly four years ago. But the new-born calves at the Jeanerette station are the product of the Department's first attempt to cross the Africanders with our best strains of domestic stock. From such a cross, the Department cattle men hope to be able to develop a line of cattle for the Gulf Coast region where the other breeds of cattle do not fully adapt themselves.

GAPEN:
In other words, they hope by a cross of our domestic breeds with the Africander to produce cattle that will withstand more successfully the heat and insects - and, I suppose, also to make better use of the native southern forage grasses.

SALISBURY:
That's the idea. Of course, most of our leading breeds of beef cattle are of British origin. Compared with the United States, the British Isles cover a very small territory.

GAPEN:
Yes. The British Isles are not much bigger than one of our larger states.

SALISBURY:
That's right. You remember your geography well.

Naturally, the British Isles do not have any such range of climate as we have in this country.

GAPEN:
So, it's easy to understand why cattle of British origin might not be fully adapted to conditions in the Gulf Coast country.

SALISBURY:
So it is.

Now, as far back as a hundred years ago, some of the more enterprising cattle men of the South began to cast around for something a little hardier than the existing breeds.

GAPEN:
In some ways, I suppose conditions for cattle raising in the South were then more unfavorable than they are today. At that time, little if anything had been done to control the cattle ticks.

SALISBURY:
Quite right. Ticks were one of the big problems.

Now, where would the southern breeder turn for hardier strains? Obviously to a country with a climate and conditions like those in the South. So, for their first introductions, they turned to India. They imported some Brahman, or Zebu, cattle.

GAPEN:
If memory serves me right, those are the famous sacred cattle of India — the cattle with the humps.

SALISBURY:
The very same. In some parts of India, the natives won't kill or eat one of those Brahman cattle under any consideration. But, they do use their milk. What's more, the Brahman cattle are very sturdy; the natives use them as oxen.

Now, I picked up the story of the early introductions of Brahman cattle, along with a sketch of beef cattle breeding in the South, from W. H. Black, of the Bureau of Animal Industry. Black heads up all the Department's beef cattle work. I won't try to re-tell all the story as Black told it to me. But, according to records, the first Brahman introductions were made back in 1849. A cattle man imported a Brahman cow and bwo bulls. Other Brahman stock was brought in later. Brahman stock, and Brahman crosses, were pretty widely distributed.

GAPEN:
But, apparently, the Brahman crosses didn't take hold in the South in any very big way.

SALISBURY:
No. Not at that time.

GAPEN:
But, I guess a great many Southern farmers <u>did</u> improve their herds and <u>did</u> make money from their cattle.

SALISBURY:
Yes, they did. A great many of the more progressive farmers bred up their herds with improved breeds of British origin from the North. For a time, many of them succeeded pretty well. But, eventually, the British breeds would begin to deteriorate. They couldn't stand up under the hot weather, and the insects. The cattle tick, in particular,

was an important obstacle to the cattle business.

GAPEN:

Well, of course, through their eradication campaign against the tick, the Federal and State officials and field workers have pretty successfully solved the tick problem.

SALISBURY:

True enough. Some folks thought eradication of ticks, alone, would enable farmers of the Deep South to round out and diversify their operations by producing beef cattle. Of course, it helped. But it didn't solve the problem entirely.

As southern farmers got more interested in cattle, and as they found the pure strains of British breeds weren't entirely successful under southern conditions, they began to take new interest in the Brahman stock from India. I won't try to describe the earlier important steps in the development of the Brahman crosses. I'll go directly to the more recent developments.

About 15 years ago, Robert Kleberg, Jr., a breeder in Texas, began to develop a cross between the Brahman cattle and the Shorthorns. Black, and his associates, have cooperated with Kleberg very extensively. Kleberg has developed a type which he calls the "Santa Gertrudis."

GAPEN:

Just what is Kleberg's Brahman-Shorthorn cross like? Does it seem to have much prospect?

SALISBURY:

Black tells me it does. Black says the Santa Gertrudis cattle- (They're red, by the way) - He says the Santa Gertrudis stock have a very deep body, a good beef conformation - and they are very hardy.

GAPEN:

It just occurs to me that the Department cattle men have been cooperating in some rather extensive feeding tests with some Brahman crosses. Did Black say anything about the results?

SALISBURY:

Yes. Black tells me the Department and the agricultural experiment stations in Texas and Louisiana, in cooperation with private breeders, have made extensive feeding tests of crosses between Brahman cattle and Shorthorns, as well as Herefords. The Brahman crosses seem to be able to use the native southern grasses very successfully; they seem well suited to the production of cattle to be finished on pasture. Black tells me they also found that part Brahman crosses raised on grass showed up very favorably at weaning time. The part Brahman crosses weighed about 90 pounds more at weaning time than the highly bred calves of the British breeds raised under the same conditions.

GAPEN:

Well, certainly, that increased weight at weaning time is a big advantage. What kind of prices did the Brahman crosses bring?

SALISBURY:

Because of their greater weight, plus a slight increase in selling price, the part Brahman calves brought about six dollars a head more than the other calves.

GAPEN:

A six-dollar increase is quite a figure.

But you say those calves were raised on grass. How do the part-Brahman crosses compare with other breeds on dry-lot feeding?

SALISBURY:

In tests in dry-lot fattening, the part-Brahman crosses compared pretty well with the other breeds up to about five months. For longer periods, they didn't gain so fast, and they used more feed for each pound of increased weight. But Black tells me the Brahman crosses usually had a higher dressing percentage to offset partly the higher carcass value of the other stock.

GAPEN:

Anyway, the Brahman crosses are mainly grass cattle.

SALISBURY:

Yes. The main idea is to develop a line of cattle to use successfully the native grasses of the South. But, of course, Black and his associates, and the State and private breeders, are pushing right ahead to develop still more satisfactory crosses -- crosses which will produce still higher quality beef.

Three or four years ago, at Jeanerette, Louisiana, the Department started in to develop still another type of cross. Black and his men disposed of their Brahman-Shorthorn crosses and began to cross the Brahman stock with the Aberdeen-Angus.

GAPEN:

Apparently they are aiming for a polled line of black cattle.

SALISBURY:

Yes. They are trying to produce a cross with a little Brahman blood and the solid color, beefy conformation, and the polled, or hornless, characteristic, of the Aberdeen-Angus.

GAPEN:

What results are they getting so far?

SALISBURY:

Very satisfactory results. From the mating of a purebred Aberdeen-Angus bull to first-cross heifers which were the progeny of a cross between Brahman and Aberdeen-Angus, they produced calves 100 percent polled and

100 per cent black.

GAPEN:

That sounds very encouraging.

SALISBURY:

It does. Now, several cattlemen in southern Texas decided they would like to import still more cattle to cross with native stock. Because of a disease quarantine on Brahman cattle, they decided to try cattle from Africa. So, four years ago, the Department furnished Black's service to go to Africa to select some African stock and bring it to this country. In October 1931, Black brought in 16 bulls and 13 females of the Africander breed.

GAPEN:

Yes, I did see the movies of those Africanders being unloaded at New York. I've always understood the Africander cattle are a very hardy line.

SALISBURY:

They are indeed. Up until very recently, the South Africans or Boers used those cattle mainly for work animals. During the Boer War, the British were unable to use horses and mules because of climatic conditions. They had to capture some Africander cattle from the Boers to privide transportation. In times of drought, when ordinary stock would starve to death, Black tells me the Africanders can live on leaves from the trees. As a further indication of their hardiness, Black says the stock he brought in kept gaining weight right through the ocean voyage and the 90-day quarantine.

GAPEN:

Well, that's some performance.

How successful do the Africanders seem to be under conditions in the South?

SALISBURY:

The Texas breeders have produced several hundred crosses between Africander bulls and Shorthorn, Hereford, Devon, and Brahman cows. In general, the Africander crosses are gentler and smoother than the Brahman crosses.

GAPEN:

Well, now, I believe you said the Department is beginning to experiment with the Africander stock.

SALISBURY:

Yes. That brings me to the announcement I made at the outset.

At the Jeanerette, Louisiana, station, Black and his associates have bred an Africander bull to both black and red Aberdeen-Angus cows. Of course, the standard color of Aberdeen-Angus cattle is black, but occasionally red calves are born and some red cows will be used in the experiments.

The plan is to breed both ways; that is, to breed Africander bulls to Angus cows and Angus bulls to cows of Africander breeding. From such crosses they expect to develop a polled line of beefy cattle, with either a red or black color. They plan to breed enough of the Africander into the Angus to make the Angus more successful under conditions in the South. Those calves born recently at the Jeanerette station are the result of the first cross.

GAPEN:

Well, Morse we'll be much interested to hear further reports on this important experiment as the work develops.

That concludes today's report. We'll be looking for Mr. Eisenhower back at this same time next Tuesday to bring you another in this series of broadcasts on agricultural science and research.

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PROGRESS OF AGRICULTURAL ADJUSTMENT

A radio talk by Morse Salisbury, Chief of Radio Service, broadcast in the Department of Agriculture period, National Farm and Home Hour, Tuesday, September 10, 1935, by NBC and 50 associated stations.

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During recent weeks Mr. Alfred D. Stedman has been reporting to you how farmers and AAA officials have made plans to take advantage of the new amendments to the Adjustment Act. They developed new programs and prepared to improve programs now in effect. Since he talked to you last Thursday much has been done to put the new ideas into action. So there's a lot of variety in today's report on what happened in agricultural adjustment during the past week. Seven programs have taken definite steps forward.

First, we have potatoes. You may remember that last week Mr. Stedman reported that Congress chose the AAA to administer the Potato Control Act and that Administrator Chester Davis had appointed J. B. Hutson as supervisor of the potato program. Last Friday a special AAA potato section was organized and A. E. Mercker was made chief of that new section. Except for 1927, when he was chief of the New Jersey State Bureau of Markets, Mr. Mercker has been connected with the Department of Agriculture for many years. Mr. Mercker will be assisted by H. C. Thompson, head of the Department of Vegetable Crops of Cornell University. Mr. Thompson is on leave from Cornell.

Mr. Mercker says that already his section is conferring with potato farmers, and that he expects an announcement giving the size of the national potato allotment and of state allotments, can be made by the first of November. Allotments, of course, are the amounts of potatoes that can be sold without tax during the next year. Those tax-free amounts are large enough to meet the normal needs of the people in the United States. Discussing that point Mr. Mercker says, and now I'm quoting: "Reports that a tax of three-quarters of a cent a pound is to be paid on all potatoes, are entirely wrong. The Act exempts from any tax, enough potatoes to meet all demand at prices only large enough to give potato growers some margin of profit."

Mr. Mercker went on to say that the purpose of the Potato Control Act is to encourage the normal production of potatoes, but to put a curb on overproduction which has been causing growers to lose money. He also said that the AAA is relying on potato growers not only for advice on details of the program, but also on enforcement questions.

Now as to tobacco. On Monday, Mr. Stedman says, manufacturers testified at hearings on processing tax rates on cigar leaf tobacco and Burley tobacco. The new amendments to the Adjustment Act laid down special rules for processing tax rates. Those rules would mean changes in the amount of the processing tax on the kinds of tobacco mentioned. The purpose of the hearings was to find out if the new rates would tend to reduce the use of those tobaccos so that surpluses would accumulate, and if so, to find out what rates would not reduce use. The Secretary of Agriculture will study the evidence taken at the hearing. If the Secretary

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finds that the rate set by law is too high, he has the authority to set a lower rate.

Here is another piece of news for growers of cigar leaf tobacco. On the same day that the tax rate hearing was held, the AAA scheduled a public hearing on a proposed cigar leaf tobacco adjustment program. That hearing will be held next Monday in Washington.

And Mr. Stedman points out here, that the contracts which are in operation now, will expire with the 1935 crop. The idea of the proposed new contract is to keep farm prices of cigar leaf tobacco at a fair exchange level. The new contract is now in tentative form. It would cover a four-year period, running from 1936 through 1939; but any grower could cancel his contract by giving due notice. The base acreage for each farm would be about the same as it is now, but small changes could be made for farms where the present base acreage is clearly too high or too low in comparison with similar farms. The acreage and production allotment would be set, so as to keep a balance between tobacco grown and tobacco used, but the allotment could not be less than 60 percent of the base. Growers who complied with the contract would get payments that would tend to make up the difference between the average farm price and the fair exchange price of tobacco grown within the allotment. Well, so much for tobacco.

A sugar program moved forward last week, too. You may remember that about three weeks ago Mr. Stedman reported to you about a proposed program for farmers in Southern States who grow sugarcane commercially for sirup. The idea of the program is to give growers of cane for sirup, a program offering the same benefits as the regular sugar cane program. Well, last Saturday that sirup program was approved by Secretary Wallace, and contracts are being sent into the south so that county agents can offer them to farmers.

Next is some news about walnuts. Last week the AAA scheduled two public hearings, on a marketing agreement and order, designed to replace the agreement and license which have been in effect for the past two years. One of the hearings will be held September 20th at Portland, Oregon, and the other will be held three days later at Berkeley, Calif. In one sense, it's very much of a West Coast matter, for the proposed agreement, like the present one, applies only to walnuts grown in California, Oregon, and Washington. But the hearings should interest most of the country, for they probably will be the first of quite a number. The West Coast walnut growers and packers were the first group to ask for hearings on a new agreement, so that they could take advantage of the new amendments to the Adjustment Act. Those amendments provide for administrative orders instead of licenses to enforce agreements, and they lay down very definite rules for the Secretary of Agriculture to follow in carrying out his side of agreements with growers and handlers. Mr. Stedman reports that the present agreement for walnuts has been operating with a pretty high degree of success.

Now we move on to rye. The proposed adjustment program for rye advanced another step last week. On Friday, the second of two public hearings on the proposed program was held here in Washington. Pennsylvania farmers testified that the farm price of rye in their part of the

country was far below parity. They said that they believed most Pennsylvania rye growers would sign a contract.

The first hearing had been held at Aberdeen, South Dakota, late last month. The AAA will use evidence, given at the two hearings, in making final recommendations for a rye adjustment program. Of course, the proposed program would apply only to rye harvested as grain. The first marketing year would run from September 1st of this year to June 30th, 1936. After that, marketing years would begin on July 1st and end on June 30th of the succeeding year. The rate of the processing tax is 30 cents a bushel of 56 pounds. This rate was established in the amendments to the Adjustment Act which Congress approved recently.

That's the week's news for rye. Next we have an item right off the wire. The proposed new program for peanuts is taking shape. Mr. Stedman reports that today peanut growers, millers and other interested parties are at a public hearing here in Washington. Those at the hearing are discussing the terms of a proposed new contract for adjusting peanut acreage or production for market, and rental or benefit payments that would be made if such an adjustment contract went into effect. The present contracts expire with the 1935 crop.

Another plan is up for discussion at the hearing. That is a proposal to remove quantities of peanuts grown in 1935 from the normal channels of trade by diverting such peanuts into oil manufacture. Payments would be made in connection with such a plan.

The proposed production adjustment contract is for the 4-year period 1936 to 1939, but a contract could be terminated by the producer or by the Secretary of Agriculture at the end of any year.

And here is the last piece of news for the week. On Saturday the Seed Conservation Committee decided to hold supplies of adapted seed wheat, until it can get more definite information on probable needs for seed in the Northwest States where drought, heat and rust have damaged crops. The committee expects a complete report by the middle of October. Joseph F. Cox, of the AAA, who is chairman of the committee, says that until then the committee is holding at least a million bushels of hard spring wheat and 350,000 bushels of durum wheat.

He says that the committee can safely dispose of the other wheat it now has, and also that there is no need of holding supplies of rye, flax, and barley. Also, he believes that if farmers and elevators in the Northwestern States hold the best of their local wheat crops they will probably have enough seed, but the committee is holding on to its reserves until all doubt is passed. The seed which the committee now has is what is left of seed bought last summer during the great drought, when officials realized that unless the Government had a supply on hand, some farmers would not be able to buy adapted seed anywhere.

And that's all of Mr. Stedman's report for today.

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GENERAL CROP REPORT

A radio talk by Kenneth M. Gapen, Radio Service, delivered in the Department of Agriculture period, National Farm and Home Hour, Tuesday, September 10, 1935, by NBC and associated stations.

Crop prospects in the United States declined about 2 percent during August according to the September estimates of the Crop Reporting Board. With dry weather in the southwestern part of the Corn Belt, corn prospects declined 88,000,000 bushels or 4 percent; grain sorghums 15 percent; and broomcorn nearly as much. Further rust damage lowered the estimate for wheat by about 13,000,000 bushels or 2 percent. The sugar beet estimate was reduced 5 percent; cotton 3 percent; and barley, buckwheat, potatoes and beans from 1 to 2 percent each. Tobacco and rice showed slight improvement. The estimates were based on conditions at the end of a dry August and do not allow for such changes in prospects as may have been caused by the widespread rains and storms of early September. Yields of late crops, particularly corn, will be affected somewhat by the earliness or lateness of killing frosts.

Further rust damage in North Dakota and disappointing threshing returns from a few of the other northern States cut 13,000,000 bushels from last month's forecast of spring wheat production and made it increasingly evident that the domestic supply of hard red spring wheat of milling quality will be below requirements. The total wheat crop is now estimated at 595,000,000 bushels. This is substantially above last year's crop of 497,000,000 bushels and the 1933 crop of 529,000,000 bushels, but is below production in any other season since 1904. We normally use in the United States 635 bushels wheat for feed, seed, and food during the year.

The sharp reductions in corn and grain sorghums in a portion of the Western Corn Belt indicate a very low production of feed grains in that area, but they do not indicate a very marked change in the national feed situation. Barring early frost, the supply of feed grain on farms is expected to be sufficient to permit farmers to feed the usual quantity of grain per head to the reduced numbers of livestock and poultry and still have about the usual proportion of the feed grain crops on hand at the end of the season. It is probable, however, that farmers will feed hogs to fairly heavy weights and will feed poultry somewhat more liberally than usual so feed supplies on farms at the end of the season may be rather light.

Hay and forage supplies are liberal for the numbers of livestock to winter in most sections except the Southwest and if no more than the average quantity of hay is fed per head the total quantity remaining on farms next spring will be the largest since 1928. Pastures are much better than at this season in any of the last six years and further improvement is expected to result from recent rains. There are still some localities in Kansas and neighboring States where extreme drought conditions prevail but the size of these areas is being steadily reduced.

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With ample pasturage and forage and with supplies of feed grain becoming more abundant livestock appears to be thriving. Prices of livestock are also high enough to encourage producers to increase their holdings. On September 1, total egg production and milk production were both running about 4 percent heavier than at the same season last year notwithstanding the reductions in flocks and herds.

Crop yields in the country as a whole are now expected to be just about equal to the average of yields during the 1921-1930 period. With the exception of Maine, Florida and Oregon all the 14 States where yields are expected to be below average are in a group centering on western Nebraska.

An ample supply of most food crops now seems assured. Certain classes of wheat seem to be the only important exception. Rather large crops of rye, beans, peanuts, sweetpotatoes, and sugar beets are expected, potatoes should be about average, and buckwheat and rice, while below average crops are ample for usual needs. The fruit crops are about average and are rather evenly distributed except for light production of oranges and grapefruit in the Gulf States. The supply of vegetables for canning is still expected to be close to or above previous records, and latest reports point to moderately heavy supplies of such market vegetables and commercial truck crops as are still to be marketed, with supplies of cabbage, onions and possibly tomatoes likely to be excessive in some areas.

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BETTER CATTLE FOR THE SOUTH

A radio interview between Morse Salisbury and Kenneth Gapen, Radio Service, in the Department of Agriculture period in the National Farm and Home Hour, Tuesday, September 10, 1935.

GAPEN:

Hello, everybody. I am sorry to report that Director Eisenhower is unable to be here for his regularly scheduled Tuesday broadcast. In his absence, Morse Salisbury, Chief of the Radio Service, will give you today's review of important new developments in agricultural science and research. I will step into Mr. Salisbury's customary role of interrogator.

Looking backward a moment. In one of the first broadcasts in this series, Mr. Eisenhower, and Mr. O. E. Reed, chairman of the Department's committee on genetics, outlined the vast unrealized possibilities in plant and animal breeding. At that time they sketched for you plans for a long-time program to produce more efficient and profitable forms of crops and livestock. Since that time, Mr. Eisenhower and other speakers have talked with you about specific breeding problems and accomplishments. Now, today, Mr. Salisbury has for us a report on results of some of the breeding work with beef cattle.

In general, the Department, State, and private breeders are trying to develop beef animals to produce meat more efficiently and cheaply. But, in one important section of the country - in the deep South, they must go a step further. They must breed into our present lines of cattle increased hardiness for southern conditions. But that's Mr. Salisbury's story -- All right, Morse.

SALISBURY:

Thanks, Ken Gapen - and hello, everyone.

GAPEN:

Morse, I believe you told me as we walked into the studio, you wanted to make an important announcement.

SALISBURY:

Yes, I did. I want to make a <u>birth</u> announcement.

GAPEN:

So far as I can remember, we've never before announced births on the Farm and Home Hour. But I suppose we could make an exception.

SALISBURY:

Well, this announcement is from the agricultural experiment station at Jeanerette, Louisiana. The Department's beef-cattle men at Jeanerette have announced the recent birth of six or seven beef calves.

GAPEN:
You seem most casual about numbers. What are they, septuplets, or something like that?

SALISBURY:
No, nothing like that. All of them were born singly.

GAPEN:
Well, in this age of multiple births, what possible claim do those single born livestock youngsters have to fame?

SALISBURY:
Simply this. On their dam's side, these new-born calves are from a long line of registered, purebred Aberdeen-Angus. But their sire--and this is their claim to distinction -- Their sire is an Africander, a member of that hardy breed of cattle developed in hot, tropical Africa, at a time when it was heavily infested with insects. The Africanders were introduced into this country nearly four years ago. But the new-born calves at the Jeanerette station are the product of the Department's first attempt to cross the Africanders with our best strains of domestic stock. From such a cross, the Department cattle men hope to be able to develop a line of cattle for the Gulf Coast region where the other breeds of cattle do not fully adapt themselves.

GAPEN:
In other words, they hope by a cross of our domestic breeds with the Africander to produce cattle that will withstand more successfully the heat and insects - and, I suppose, also to make better use of the native southern forage grasses.

SALISBURY:
That's the idea. Of course, most of our leading breeds of beef cattle are of British origin. Compared with the United States, the British Isles cover a very small territory.

GAPEN:
Yes. The British Isles are not much bigger than one of our larger states.

SALISBURY:
That's right. You remember your geography well.

Naturally, the British Isles do not have any such range of climate as we have in this country.

GAPEN:
So, it's easy to understand why cattle of British origin might not be fully adapted to conditions in the Gulf Coast country.

SALISBURY:
So it is.

Now, as far back as a hundred years ago, some of the more enterprising cattle men of the South began to cast around for something a little hardier than the existing breeds.

GAPEN:
In some ways, I suppose conditions for cattle raising in the South were then more unfavorable than they are today. At that time, little if anything had been done to control the cattle ticks.

SALISBURY:
Quite right. Ticks were one of the big problems.

Now, where would the southern breeder turn for hardier strains? Obviously to a country with a climate and conditions like those in the South. So, for their first introductions, they turned to India. They imported some Brahman, or Zebu, cattle.

GAPEN:
If memory serves me right, those are the famous sacred cattle of India — the cattle with the humps.

SALISBURY:
The very same. In some parts of India, the natives won't kill or eat one of those Brahman cattle under any consideration. But, they do use their milk. What's more, the Brahman cattle are very sturdy; the natives use them as oxen.

Now, I picked up the story of the early introductions of Brahman cattle, along with a sketch of beef cattle breeding in the South, from W. H. Black, of the Bureau of Animal Industry. Black heads up all the Department's beef cattle work. I won't try to re-tell all the story as Black told it to me. But, according to records, the first Brahman introductions were made back in 1849. A cattle man imported a Brahman cow and bwo bulls. Other Brahman stock was brought in later. Brahman stock, and Brahman crosses, were pretty widely distributed.

GAPEN:
But, apparently, the Brahman crosses didn't take hold in the South in any very big way.

SALISBURY:
No. Not at that time.

GAPEN:
But, I guess a great many Southern farmers <u>did</u> improve their herds and <u>did</u> make money from their cattle.

SALISBURY:
Yes, they did. A great many of the more progressive farmers bred up their herds with improved breeds of British origin from the North. For a time, many of them succeeded pretty well. But, eventually, the British breeds would begin to deteriorate. They couldn't stand up under the hot weather, and the insects. The cattle tick, in particular,

was an important obstacle to the cattle business.

GAPEN:

Well, of course, through their eradication campaign against the tick, the Federal and State officials and field workers have pretty successfully solved the tick problem.

SALISBURY:

True enough. Some fo lks thought eradication of ticks, alone, would enable farmers of the Deep South to round out and diversify their operations by producing beef cattle. Of course, it helped. But it didn't solve the problem entirely.

As southern farmers got more interested in cattle, and as they found the pure strains of British breeds weren't entirely successful under southern conditions, they began to take new interest in the Brahman stock from India. I won't try to describe the earlier important steps in the development of the Brahman crosses. I'll go directly to the more recent developments.

About 15 years ago, Robert Kleberg, Jr., a breeder in Texas, began to develop a cross between the Brahman cattle and the Shorthorns. Black, and his associates, have cooperated with Kleberg very extensively. Kleberg has developed a type which he calls the "Santa Gertrudis."

GAPEN:

Just what is Kleberg's Brahman-Shorthorn cross like? Does it seem to have much prospect?

SALISBURY:

Black tells me it does. Black says the Santa Gertrudis cattle- (They're red, by the way) - He says the Santa Gertrudis stock have a very deep body, a good beef conformation - and they are very hardy.

GAPEN:

It just occurs to me that the Department cattle men have been cooperating in some rather extensive feeding tests with some Brahman crosses. Did Black say anything about the results?

SALISBURY:

Yes. Black tells me the Department and the agricultural experiment stations in Texas and Louisiana, in cooperation with private breeders, have made extensive feeding tests of crosses between Brahman cattle and Shorthorns, as well as Herefords. The Brahman crosses seem to be able to use the native southern grasses very successfully; they seem well suited to the production of cattle to be finished on pasture. Black tells me they also found that part Brahman crosses raised on grass showed up very favorably at weaning time. The part Brahman crosses weighed about 90 pounds more at weaning time than the highly bred calves of the British breeds raised under the same conditions.

GAPEN:

Well, certainly, that increased weight at weaning time is a big advantage. What kind of prices did the Brahman crosses bring?

SALISBURY:

Because of their greater weight, plus a slight increase in selling price, the part Brahman calves brought about six dollars a head more than the other calves.

GAPEN:

A six-dollar increase is quite a figure.

But you say those calves were raised on grass. How do the part-Brahman crosses compare with other breeds on dry-lot feeding?

SALISBURY:

In tests in dry-lot fattening, the part-Brahman crosses compared pretty well with the other breeds up to about five months. For longer periods, they didn't gain so fast, and they used more feed for each pound of increased weight. But Black tells me the Brahman crosses usually had a higher dressing percentage to offset partly the higher carcass value of the other stock.

GAPEN:

Anyway, the Brahman crosses are mainly grass cattle.

SALISBURY:

Yes. The main idea is to develop a line of cattle to use successfully the native grasses of the South. But, of course, Black and his associates, and the State and private breeders, are pushing right ahead to develop still more satisfactory crosses -- crosses which will produce still higher quality beef.

Three or four years ago, at Jeanerette, Louisians, the Department started in to develop still another type of cross. Black and his men disposed of their Brahman-Shorthorn crosses and began to cross the Brahman stock with the Aberdeen-Angus.

GAPEN:

Apparently they are aiming for a polled line of black cattle.

SALISBURY:

Yes. They are trying to produce a cross with a little Brahman blood and the solid color, beefy conformation, and the polled, or hornless, characteristic, of the Aberdeen-Angus.

GAPEN:

What results are they getting so far?

SALISBURY:

Very satisfactory results. From the mating of a purebred Aberdeen-Angus bull to first-cross heifers which were the progeny of a cross between Brahman and Aberdeen-Angus, they produced calves 100 percent polled and

100 per cent black.

GAPEN:

That sounds very encouraging.

SALISBURY:

It does. Now, several cattlemen in southern Texas decided they would like to import still more cattle to cross with native stock. Because of a disease quarantine on Brahman cattle, they decided to try cattle from Africa. So, four years ago, the Department furnished Black's service to go to Africa to select some African stock and bring it to this country. In October 1931, Black brought in 16 bulls and 13 females of the Africander breed.

GAPEN:

Yes, I did see the movies of those Africanders being unloaded at New York. I've always understood the Africander cattle are a very hardy line.

SALISBURY:

They are indeed. Up until very recently, the South Africans or Boers used those cattle mainly for work animals. During the Boer War, the British were unable to use horses and mules because of climatic conditions. They had to capture some Africander cattle from the Boers to privide transportation. In times of drought, when ordinary stock would starve to death, Black tells me the Africanders can live on leaves from the trees. As a further indication of their hardiness, Black says the stock he brought in kept gaining weight right through the ocean voyage and the 90-day quarantine.

GAPEN:

Well, that's some performance.

How successful do the Africanders seem to be under conditions in the South?

SALISBURY:

The Texas breeders have produced several hundred crosses between Africander bulls and Shorthorn, Hereford, Devon, and Brahman cows. In general, the Africander crosses are gantler and smoother than the Brahman crosses.

GAPEN:

Well, now, I believe you said the Department is beginning to experiment with the Africander stock.

SALISBURY:

Yes. That brings me to the announcement I made at the outset.

At the Jeanerette, Louisiana, station, Black and his associates have bred an Africander bull to both black and red Aberdeen-Angus cows. Of course, the standard color of Aberdeen-Angus cattle is black, but occasionally red calves are born and some red cows will be used in the experiments.

The plan is to breed both ways; that is, to breed Africander bulls to Angus cows and Angus bulls to cows of Africander breeding. From such crosses they expect to develop a polled line of beefy cattle, with either a red or black color. They plan to breed enough of the Africander into the Angus to make the Angus more successful under conditions in the South. Those calves born recently at the Jeanerette station are the result of the first cross.

GAPEN:

Well, Morse we'll be much interested to hear further reports on this important experiment as the work develops.

That concludes today's report. We'll be looking for Mr. Eisenhower back at this same time next Tuesday to bring you another in this series of broadcasts on agricultural science and research.

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RESEARCH AND THE HARVEST

A radio talk by V. R. Gardner, Director, Agricultural Experiment Station, East Lansing, Michigan, delivered in the Land-Grant College Radio Hour, September 18, 1935, and broadcast by a network of 50 associate NBC radio stations.

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When a farmer sows or plants in the spring, he does so with the expectation that there will be a harvest and he hopes that the harvest will be abundant. Between sowing and reaping, or planting and gathering, there is opportunity for many an accident -- flood, drouth, frost, intense heat, hail, and insect and fungus pests of many kinds. For many, or most, of these contingencies the farmer is prepared -- in part through equipment or devices invented and manufactured for him by the farm implement industry, in part by information supplied by various research agencies such as the Experiment Stations, and in part by the farmer's own resourcefulness.

Then comes the harvest and with it a new set of problems. These include not only the mechanical one of getting the crop under cover and in storage, a problem that has always been recognized and to a considerable degree solved, but many of the less obvious type of so timing the various harvesting operations and of so handling, curing and perhaps processing the crop as to obtain a product of optimum quality. Thus there may be a difference of 30 percent in the protein content and consequent nutrient value of alfalfa hay, depending on when it is cut and cured, an equal difference in the sugar content and palatability of cantaloupes and grapes, depending on the stage of maturity at which they are gathered, a difference of a month in the storage quality of pears depending on the temperatures to which they are exposed the first 48 hours after gathering. It is to this and related groups of questions that the United States Department of Agriculture and the Experiment Stations have contributed much during recent years.

To the consumer in the city it may seem of little importance that studies by the Colorado Experiment Station indicate how the time to sun-cure alfalfa hay can be reduced from three days to six hours. That, nevertheless, is likely to be of direct interest and value to literally hundreds of thousands of farmers from one coast to the other. Whether cured alfalfa hay contains 18 or 10 percent protein may seem of small moment to the great majority of our population. Yet the discovery, or, perhaps more accurately, the development, that it is both possible and practicable so to raise, harvest and cure the alfalfa crop as to obtain the 18 percent grade is of vital importance to tens of thousands of stock feeders and gives promise not only of saving them large expenditures for so-called concentrates, but perhaps effecting substantial changes in the livestock map of the country.

Were a New York or Illinois resident to read an item tucked away somewhere in an inside page of his newspaper that the Texas Experiment Station has perfected a small sized mechanical cotton picker that halves

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the cost of the harvesting operation, it would probably attract no more attention than a brief account of a street riot in Paris the preceding day. Nevertheless, the perfection of the mechanical cotton picker is bound to effect some reduction in the cost of living for practically every man, woman and child in the country.

To the prairie or cotton belt farmer, as well as to the city dweller, a pressure tester to determine the degree of ripeness of fruit is just another gadget, comparable to something he might buy to attach to the aerial of his radio or the carburetor of his car. Yet this device, perfected by investigators in the United States Department of Agriculture and two of the western Experiment Stations, now plays an important role in informing the pear grower just when he should gather his fruit so that it will be of the best eating and canning quality and so that it will hold up best in storage, and it does much to insure the consumer a uniformly high quality of this fruit as he purchases it from day to day in the market.

Some of the research work of the Experiment Stations connected with the harvest is primarily in the interest of the consumer, as for example, that which relates to the removal of poisonous spray residues from fruit. Today the consumers everywhere can purchase apples, pears or other fruits that are not only good, but that are safe. They are free from excess quantities of spray materials, because the Agricultural Research work of the country has perfected methods of removing them.

In brief, the research work of the United States Department of Agriculture and of the Agricultural Experiment Stations, especially that portion of it which has to do with harvesting processes and operations, though nominally designed to aid the farmer, in reality serves the whole population -- reducing costs, improving quality and making agricultural products safer and better.

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TRAINING RURAL LEADERSHIP FOR A GOOD HARVEST

A radio talk by H. F. Cotterman, Professor of Agricultural Education, College Park, Maryland, delivered in the Land-Grant College radio Hour, September 18, 1935, and broadcast by a network of 50 associate NBC radio stations.

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The Land Grant colleges were reared to enrich the harvest. To train a leadership capable of increasing and interpreting the harvest to the thousands living in the valleys, on the plains, in the villages, and in the cities of our land. And have they been successful? There is not a corner anywhere in our broad country that has not somehow been touched by the creative influence of Land Grant College instruction.

I would not bore you with statistics but the colleges through the leaders they have developed have insured production on thousands upon thousands of acres. They began with the study of the soil. Marched on into the fields of "quality crop" and "livestock improvement". Began the work of insect and disease control. Quickly recognized the importance of the study of mechanical devices for the amelioration of the severity of farm labor. Developed farm cost account systems and pushed the study of Agricultural Economics into a field of major proportions. Last but not least, through their efforts in the training of individuals for productive work in research, extension and education, they have developed a philosophy of life which is having a profound effect on attitudes the country over.

More and more as the graduates both young and old of the Land Grant colleges and universities ponder the problems of the harvester they realize that the most important crop the farmer produces is the life he and his family reap from the acres under his control. The leadership which has received its fundamentals in these institutions visualize now more clearly than ever before that there must be economic consumption as well as economic production and that both of these activities somehow must be linked with a sense of social service, self-realization, and enlarging spiritual outlook.

As these institutions developed they were brought face to face with the profound preachment of the ages, that where there is no vision the people perish. It is to this age-old task of enlarging the vision of men and the attendant release of spiritual energy which such enlargement entails that this leadership trained in Land Grant colleges has been devoting itself on the farms, in rural communities, in the work of county and home demonstration agents, in the class rooms of universities, in Smith-Hughes all-day, part-time, and evening schools, in the government service, in the professions, in the many fields of business, in research, in journalism, on lecture platforms, in legislative halls, and in laboratories everywhere. This leadership constitutes a mighty army and has exerted a creative influence in one form or another in the attitudes and ideals of more than one-half of our population.

This is the record. It is not a still picture of statistics but it is a living, dynamic, pulsating sort of record without which much of America might be a land of peasants, great areas of despair. It is a record of such magnitude that we cannot readily grasp its full social significance. The harvest has been enormous.

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The Land Grant colleges and universities are a social and economic necessity. Not for the present harvest are they a social and economic necessity, but for the sake of the harvest of further generations. In the same way that Justin Morrill and the founders of these colleges, the state legislatures, and the Federal Congress has supported these institutions all through the years in order that the harvest might be what it is today, we must support them in order that future generations may reap a harvest which they may call abundant.

The Land Grant colleges and universities must go on painstakingly training farm boys and girls and city young folk as well in the fundamentals just as these institutions have been doing. They must give thorough grounding in the sciences, the humanities, and in the social studies with such professional or vocational application as seem necessary. They must continue to furnish opportunity for the development of spiritual outlook and the release of spiritual energy. Most of all they must continue to be manned by leaders who have a grasp upon life sufficiently strong to permit them to extend a helping hand to students who come to college more for guidance then for study.

Yes, instruction, teaching, the laying of ground work for prospective leaders, in order that the harvest be abundant, is the work of the Land Grant colleges. This ground work is a social and economic necessity in order that the harvest be abundant.

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BETTER ROADS -- AT LOWER COST

A radio interview between Morse Salisbury and Kenneth Gapen, Radio Service, in the Department of Agriculture period of the National Farm and Home Hour, Tuesday, September 24, 1935.

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GAPEN:

I regret to announce that Mr. M. S. Eisenhower, Director of Information, is unable to take part in today's broadcast. In his absence, Morse Salisbury, chief of the Radio Service, will bring you the usual Tuesday report on agricultural research.

Mr. Salisbury comes to the microphone today with the story of what, I suppose, is one of the most important and far-reaching pieces of research ever performed by the scientists of the Department of Agriculture. This bit of research vitally affects most, if not all, of our rural listeners-- and, I expect, also our urban listeners. It has revealed facts about the nature and proper handling of soils in road beds which are greatly cutting the cost of building and maintaining roads; in particular, it is bringing the cost of improved roads down to a point where they can be made available far more widely than ever before to folks in rural sections. The results of this research also will be valuable to farmers in building roads on their own farms, and to farmers, engineers, and others in drainage and construction work.

We thought you would be especially interested to hear about this work right now while plans are under consideration to improve a big mileage of secondary, or farm roads, under the Federal emergency works relief program.

I now leave the story to Mr. Salisbury. All right, Morse --

SALISBURY:

Thanks, Ken -- and hello, everyone.

First, Ken, I'd like to reminisce a moment.

GAPEN:

Sure. Go to it!

SALISBURY:

I wonder if you can remember back to a situation during the War years, especially in the vicinity of the camps? There was a great deal of heavy hauling with big trucks with solid rubber tires. Day in and day out, they rumbled, and bumped, and jarred along, creating young earthquakes as they went. Of course, they tore some of the early improved roads of that day to pieces.

GAPEN:

I've certainly seen how those big, solid-tired trucks cracked up the roads.

SALISBURY:

All of us have.

Thomas H. MacDonald, the chief of the Bureau of Public Roads sized up the situation in the War and post-war days. He figured it was not just the dead weight of the trucks that damaged the roads, but the everlasting thumping they gave it as they bumped over the high spots. Impact, MacDonald called it. Well, if trucks were on the roads to stay, as they probably were, he concluded the engineers simply would have to find some way to reduce the impact. So, he put his research engineers to work. They soon found that impact depends a lot on the type of tire. The same load on the same truck running at the same speed produced impacts many times as great with solid rubber tires as with the pneumatic type.

GAPEN:

To put it another way, the truck with the pneumatic tire is far easier on the road.

SALISBURY:

That's right. So the manufacturers developed a pneumatic tire for trucks. Many states then passed laws ruling solid-tired trucks off the road or taxing them heavily. The pneumatic tire for trucks revolutionized the transportation situation.

GAPEN:

But, in spite of that development, the fact remains that we still have a big bill for highway repair and maintenance.

SALISBURY:

Quite true. But, with the general use of pneumatic tires, and with a limit on loads, the biggest source of damage to highways is no longer man-made, but comes from natural causes.

GAPEN:

I suppose by natural causes, you mean rains, and water, and freezes, and what have you.

SALISBURY:

That's right.

Now, of course, it's entirely possible to build roads heavy enough, and strong enough, to resist those natural forces and stay useable for a period of years.

GAPEN:

That was proved long ago. Look at the roads built by the Romans. I guess nearly everybody knows that some of those roads with two- to four-foot-thick pavements are in pretty good condition even today.

SALISBURY:

Quite true. But you don't have to go back to the days of Rome. We have built, and are building, some pretty fine pieces of road even in our own day.

But, we haven't whipped the problem of cost; cost of building and of maintaining. On the primary road system -- that is, on the main-travelled roads connecting larger cities -- the problem isn't quite so great. In the first place, the mileage is limited. In the second place, those roads usually bring in a pretty good revenue. For an example, MacDonald mentioned the road between

Washington and Richmond. That road may last 20 or 30 years, but it earns enough through gas taxes, and other taxes, to rebuild itself every five years. That wouldn't be true of a secondary road, so with the increase in the number of automobiles, and with the demand for hard roads up all the highways and by-ways of the country, MacDonald saw years ago that we would have to have a good, but less expensive type of road for the secondary road system. He set his men to work to lower the cost of building good roads for each type of duty.

GAPEN:

In other words, he wanted to develop a method of building secondary roads at a cost in line with the revenue-earning ability of such roads.

SALISBURY:

Well, certainly, the highway engineer always thinks first of how much a road will earn. But, with the secondary roads in particular, they take other things into account. A road through some rural district may not actually earn enough to build and maintain one bridge or culvert. At the same time, that road may be fully justified. If we are to maintain our rural life and culture, and if we are to maintain the industry which supplies our food and other products, we must provide rural sections with roads which are passable the year round. MacDonald has very definite convictions on that point. He justifies good secondary roads on the same basis as you would justify good schools.

GAPEN:

Nevertheless, I take it the highway men don't urge building a road like the Washington-to-Richmond road, up every hollow in the country. If rural districts are to have adequate roads, the cost must be reasonable.

SALISBURY:

That's the point.

Now, up to a few years ago, highway builders had been interested mainly in two things. First, they tried to protect the road from water by covering the surface, ditching, crowning, raising the road bed, and so on. Second, they put a surface layer of some kind on the road to spread out the load of the vehicles passing over the road.

GAPEN:

Following you so far -- what next?

SALISBURY:

But, some 15 years ago, MacDonald began to turn over in his head a third line of attack. After all, a concrete surface, or any other kind of surface, merely protects the roadbed and spreads the load. The weight of the traffic is passed on down to the soil underneath. When a road breaks, or slips, or heaves, it's usually because of the behavior of the soil supporting it. So, in his search for ways to cheapen and improve road construction, MacDonald said, "Why not try to find ways to make the subgrade soil carry a heavier load?"

GAPEN:

That seems a highly reasonable idea.

SALISBURY:

All right -- say you concede that -- you at once face another question: What is the main factor in the ability of the soil in a particular subgrade to carry weight?

GAPEN:
Just making a wild guess, I would say water.

SALISBURY:
A good guess. The ability of the road bed to stand up depends on the amount of water present, and the effect of water on the particular kind of soil in the subgrade.

MacDonald illustrated the point with two common types of soil -- a gumbo clay, and a sandy loam. What happens when gumbo clay gets wet?

GAPEN:
What happens when you wet a cake of builders glue?

SALISBURY:
You sound as though you might know something about the consistency of Kansas gumbo in the spring. Well, anyway, water weakens gumbo just as it does all the clay-type soils. Under a load, wet gumbo flows like molasses. As it dires, it shrinks. Obviously, in its natural state, gumbo doesn't make a satisfactory road base.

GAPEN:
That's unfortunate. Many of the agricultural soils in the Corn Belt, and the other better agricultural regions, are of that very same type.

SALISBURY:
Quite true.

But, now take a sandy soil. Of course, if water comes up through sand, it produces quicksand. But, if the water sinks, or percolates, down through the sand, it makes the sand firmer and stronger.

GAPEN:
Like the famous racing course along the ocean at Daytona Beach, Florida. The water action on the beach produces a bed of sand almost like concrete.

SALISBURY:
Good illustration, Ken.

Now, in between the gumbo and the sand are all shades and grades of soil. They vary greatly in their value as bases for roads.

The soils men already had developed tests and grades for soils to indicate their agricultural value. Starting with what the agricultural soils scientists had learned about soils, MacDonald and his associates set out to develop an entirely new set of tests to determine how much of a load a particular type of soil could support under various conditions -- especially how much it could support when wet. This work has been carried on by C. A. Hogentogler, in charge of the subgrade research work of the Bureau of Public Roads.

GAPEN:
I suppose Hogentogler would develop tests to show what happens to the soil when it's hot or cold, when it's wet or dry, or when it's frozen or thawed.

SALISBURY:
That's right.

Now, having developed those tests, Hogentogler began to apply them to the soils in the road beds in various sections of the country. He tested soils under roads which had stood up successfully, and under roads which had failed. His tests led to a classification of soils for road building purposes. This classification provides the basis for recommendations about how to handle the various types of soils in road building.

GAPEN:
From such tests and classification, I suppose the road engineers can say how thick a paving surface a particular type of soil will have to have, and so on.

SALISBURY:
Yes. Also, what kind of drainage it will require.

This information enables the highway engineers to design roads much more intelligently and successfully. By being able to gauge properly the thickness of pavement required, they are able to avoid the waste which comes from building the road too thick, as well as the waste which comes from building the road too thin.

GAPEN:
At the same time, I judge this information should tell the engineer what soils to avoid altogether.

SALISBURY:
My first answer is yes. But I follow immediately with a word about another highly important phase of this work on subgrades. Hogentogler and his associates are now working on an analysis of the various kinds of soils to find out just why they are good, or bad, or indifferent as subgrade soil. What elements do they contain? If a soil isn't satisfactory, they can mix something with it to improve it.

GAPEN:
In other words, doctor the unsatisfactory soil.

SALISBURY:
That's right.

Hogentogler and his men are experimenting with materials of various kinds. They are doctoring the natural soils with binding materials such as the natural clays, and commercial products such as cement and bituminous materials, to make them hang together. For example, by mixing a bituminous product with that sticky gumbo, they can make the gumbo hard as a rock. But, of course, they have to find a way to bring down the cost of using some of those processes.

GAPEN:
Well, is this new information about the nature and proper handling of subgrade soils being used pretty extensively?

SALISBURY:

Hogentogler tells me about 36 States already have set up soils laboratories to test soils for subgrades. New Hampshire was the first State to put the system into general practice. The subgrade soils in New Hampshire change very rapidly. Many roads heaved as much as several inches. They not only were dangerous to traffic but were expensive to keep up. Maine figured road losses from frost damage at a half million dollars a year, Ohio at a quarter of a million. Minnesota and various other States also reported tremendous losses.

GAPEN:

Through the application of this newer knowledge of how to handle various types of subgrade soils, I suppose they are able to eliminate a great deal of such damage and reduce maintenance costs.

SALISBURY:

Yes, reduce losses from frost damage and other effects of water, and cheapen the cost of construction.

GAPEN:

All to the end of making good roads available to more rural families.

SALISBURY:

That's right.

I might say that this work on subgrade soils is turning out to have still other important benefits aside from its use in the building of highways. The general principles apply to the building of roads on the farm, -- they are resulting in cutting to a fraction of their former figure the cost of draining swamp land, wet fields, and so on, -- and they are being used extensively in the construction of buildings, dams, and so on. Next week, I think Mr. Eisenhower plans to tell you how farmers can apply the principles of soil stabilization to improve roads on and around the farm at a minimum cost.

GAPEN:

Well, thanks very much, Morse. We will look for Mr. Eisenhower back for another of the weekly research broadcasts at this same time next Tuesday.

I might add, that if any of our listeners are interested in obtaining further information about the matters discussed in today's broadcast, just write to the Bureau of Public Roads, Washington, D. C.

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THE CCC IN EROSION CONTROL

A radio interview between Morse Salisbury, Radio Service, and Leland Barrows, Soil Conservation Service, broadcast Wednesday, September 25, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

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SALISBURY:

We're to have today another report on the progress of the large-scale project for control of soil erosion and conservation of our basic national resource. This report will give us facts gathered and comments made by Mr. J. G. Lindley, chief engineer of the Emergency Conservation Work erosion control camps -- otherwise the CCC camps working on erosion control. The size of this work will be surprising to many of you, as it was to me. Mr. Lindley is not able to be with us, and his report will be presented by Leland Barrows of the Soil Conservation Service. Leland, I trust you'll not object if I drop in a question or two now and then.

BARROWS:

Not at all, Morse, not at all.

SALISBURY:

Well, then, let's be on our way. I know everyone listening will want to have a brief history of the soil conservation service, and of the way it has come to work with the CCC at the job of controlling erosion.

BARROWS:

I think Farm and Home listeners have a pretty good idea of why the soil conservation service was set up. Our chief, Mr. H. H. Bennett for some seven years now has been telling this audience about the menace of erosion.

SALISBURY:

Yes, he did a good job of calling the nation to arms to fight that menace during the days when he was a soil scientist in the Soil Survey. Then, after he was put in charge of the erosion control work, he came to the microphone a score of times to report progress. Go ahead with your story, Leland.

BARROWS:

I'll continue from the time in September, 1933, when Mr. Bennett was put in charge of the Soil Erosion Service, which was set up in the Interior Department by Executive Order under authority of the National Industrial Recovery Act. He at once began to set up demonstrations of how to control erosion in the sections where it was doing the most damage.

SALISBURY:

Yes, we had several reports on that in early 1934.

BARROWS:

You may recall then that the labor expense of a good many of those early demonstrations was defrayed from C. W. A. funds. But you'll also recall that the C. W. A. was discontinued in the spring of 1934.

(over)

SALISBURY:

Yes, I recall that.

BARROWS:

When that happened, the Soil Erosion Service turned to the CCC for assistance in controlling erosion which affected several farms, maybe a whole community -- big gullies, you see.

SALISBURY:

I understand. If erosion affects are harming one man's farm only, it's up to the owner of that farm to supply the labor necessary to put in erosion control methods. But if a gully affects or is likely to affect several farms, then, the CCC camps step in to protect the community generally.

BARROWS:

That's the idea.

SALISBURY:

I may ask you to expand on it later. But just now, won't you go ahead and tell us about the growth of CCC erosion control work in cooperation with your Service?

BARROWS:

Gladly. The first CCC camps were assigned to erosion control in the third CCC period, April to September, 1934. The number of camps working with us at the start of the period was 22. Later on, 12 more camps in the drought area were assigned to work with us.

SALISBURY:

That makes 34.

BARROWS:

Correct. Then, at the start of the next period, in October, 1934, 17 more were assigned to us.

SALISBURY:

So you start with 51 CCC erosion control camps last October.

BARROWS:

Your arithmetic is flawless. Now I'll switch to the history of our own service. On March 25th of this year, with the approval of the President, the Soil Erosion Service was transferred to the Department of Agriculture. On April 27th, in accordance with an Act of Congress, its name was changed to Soil Conservation Service, and all erosion control activities of the Department

of Agriculture were unified under its direction. This brought 154 more CCC camps concerned with erosion control under our supervision.

SALISBURY:

Two hundred and five camps, then on April 1st, 1935.

BARROWS:

Two hundred and five. Then, at the same time, the CCC work was greatly expanded, and 340 additional camps were assigned to us.

SALISBURY:

So now you have 545.

BARROWS:

Yes, 545 camps. At full quota that's more than 100,000 men working on the prevention of erosion which affects several farms or whole communities.

SALISBURY:

Mr. Bennett really has an army fighting this menace now!

Well we've had our history, Leland. Now, tell us how this CCC army campaigns against erosion. You've remarked before that it concentrates on stopping the growth of big gullies.

BARROWS:

Yes, that's one of the most serious forms of erosion, and its effects extend right across farm line fences. Now, to review the things Bennett and others have told you scores of times -- gullies are caused by concentrated water flowing fast enough to cut soil particles loose and carry them away. Gullies start most often at a place where nature's mantle of protecting vegetation has been removed -- in plow furrows, paths and trails, wheel ruts, the farm yard. The longer the flow of water, the greater the erosion and the larger the gully.

Our scientists have found that man is most successful in stopping gullies when he follows nature's own method. The first step is to establish in the gully bottom a new and less sloping grade. That lessens the speed, and the cutting and carrying power of the water flow. The next step is to anchor the surface of this new grade line by putting a cover of vegetation on it.

SALISBURY:

So the CCC workers establish the new grade line by using check dams, pits, mounds, ditches, contour furrows, or dikes. Then they plant trees or grasses to hold the new grade lines.

BARROWS:

That's the general idea.

SALISBURY:

Where are your CCC camps working?

BARROWS:

Where erosion is most serious. In the Piedmont, the overgrazed alluvial valleys of the Southwest, the wheat belt of the Northwest, the glaciated soils region in the upper Mississippi Valley, the Black Belt of Texas, and windblown soils of the Middle West.

SALISBURY:

Time's about up, Leland, will you give us a summary?

BARROWS:

Well, here's the way Lindley summed it up for me recently:

"In addition to the work that private individuals do on their own land to control erosion, large engineering jobs of control are necessary where gullying menaces whole communities. The CCC camps do such work. They don't do gully control on the land of a single individual unless the gully has grown until it is beyond his control and threatens the land of his neighbors, and of a whole community. The camps step in to give protection to the community at large, and where the reasons for such organized protection service are overwhelming.

"The land furnishes the problem. The Soil Conservation Service furnishes a staff of technicians to figure out what should be done. The CCC camps furnish the labor."

SALISBURY:

Very good, Leland. Now, give us, please, one final word as to the results of this work by the 545 camps with their scores of thousands of workers.

BARROWS:

I'll quote Mr. Lindley again on that. He says this:

"Farmers everywhere are becoming less despondent about those gully fingers that were creeping across their fields. Cattlemen are becoming convinced that some system of management and restricted grazing is necessary to save the ranges. Check-dams and plantings have stopped the growth of thousands of gullies. Millions of trees have been planted. Thousands of acres of land have received the benefit of improved farming practices. People everywhere have become conscious of the part which they and their forebears have played in causing erosion, and public opinion is coming to condemn wilful continuation of the practices which have exposed the farm land of the nation to the danger of erosion."

That ends the quotation from Mr. Lindley.

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SOCIAL VALUES OF GOOD HOUSING

A radio talk by Dr. Paulena Nickell, Assistant Professor of Home Management, University of Illinois, Urbana, Illinois, delivered in the Land-Grant College radio hour, October 16, 1935, and broadcast by a network of 47 associate NBC radio stations.

--ooOoo--

I wonder if many of you have been interested in the literature which has lately come forward on the subject of "better living". The experiences through which the world has travelled in the past few years have made people pause and take stock of their values in life; by that I mean,--what it is they want from life and what they may accomplish in life through constructive effort. I realize there will be as many ideas on what constitutes "better living" as there are listeners today. I am sure, however, to each of you there must come a feeling that better living includes creativeness and progressiveness in living and wholesome well-being in personal and social relationships. Social improvement should follow individual improvement, and any circumstance, therefore, that makes for the individual's development gives to the social group its greatest support. The contribution of good housing to social well-being is apparent, for such housing gives to the individual the background within which he may develop a well-rounded life. It was the recognition of this contribution that caused the President in 1931 to call a Conference on Home Building and Home Ownership. To this conference were representatives drawn from every field which pertained to home building--and here I use the word Home to include the house and its people. This conference has been reported in a ten-volume work and is most revealing. It was recognition of housing as a factor in better living which caused the Land Grant colleges to lend the support of their interested staff members to the Farm Housing Survey made in 1933-34. This survey covered some 352 counties in 46 states and represents the most comprehensive study into rural housing conditions ever made in this country. And further, it is the realization that good housing has vital social value that has caused the Resident Teaching and Extension Departments in the Land Grant Colleges to include in their programs of study the essential of good housing--and the Agricultural Experiment Stations to include in their researches the problems of housing which need further study.

Many of the factors in housing that have value I shall not have time to discuss-- but I will speak briefly of what good housing means to society in general. It means that every house should offer the background environment for the most favorable development of its individual family members and by so doing gives strength to the larger group. In the farm home where group activities still remain a part of home life, the problem of doing things together may seem to exist less than in the urban home where there is much less opportunity for cooperative integrated living. Fortunate is the family whose housing not only makes possible but is so arranged as to stimulate creative group living. For instance, a family as a group project might reclaim an old log cabin, a smoke house or a little-used basement room as a recreation room. Such group activities demand adjustments and it is from the adjustments made in family life that the foundations for adjustments in social living are built.

(over)

Equally important for the individual's development is space to which he can go for privacy--and by that I mean either an entire room or an area specifically designated for his sole use. It is essential that the individual have such provision--and good housing makes that possible. Frequently the problem is one of better use of available space. In studying the housing of a group of successful farm homemakers, I found that although there was bedroom space available for taking adequate care of the family members,-- the space was not used! In the study of arrangements for privacy in family living, I found that about half the families had a bedroom for each of its members. Only 53 percent had private space of any kind for individual use. So, you see, a house which from the outside may seem adequate, may be actually inadequate because available space is not used.

Thus I say that the social values of good housing flow from a realization that good housing is a vital formative force in the lives of human beings, and those families that recognize this fact will have a background for better and more abundant living.

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COMFORT IN THE FARM HOME

A radio talk by Ivan D. Wood, Extension Engineer, University of Nebraska, Lincoln, Nebraska, delivered in the Land-Grant College Radio Program, October 16, 1935, and broadcast by a network of 47 associate NBC radio stations.

I think you will agree with me when I say we do not appreciate those things which make for comfort in the home until we suddenly find ourselves without them. Did you ever have the light plant fail or have the current turned off and have to read for a time by the light of a candle or an old fashioned oil lamp? Have you ever experienced a cold day which came suddenly in the fall before the stoves were put in place or the furnace fire lighted? Maybe you have endured a day or two in a summer cottage with leaky roof, rain blowing in around doors and windows, cold floors with drafts scurrying here and there and no room to move without the family stepping on each other at every turn. I am guessing that you longed for your comfortable home and vowed you would never leave it once you were there again.

In experiences like these, we learn the things which make a house comfortable; tight, warm roofs and walls, which protect us from sun, wind and storm; heat for cold weather and coolness for hot weather; ample space in which to live, eat and sleep; good light, both natural and artificial, by which to read, work and play; convenient toilet facilities, and so on through a list too long to mention here.

While wehave been talking, no doubt you have been wondering if farm homes in general are so built and equipped that comfort is provided for the family. Some indication as to this fact is given in the results of housing survey made in 352 counties in 46 states as a Civil Works Administration project. Of the six and a quarter million farm houses in the country, probably 50 per cent are in fairly good structural condition, 15 per cent need a complete replacement of foundations; 15 to 20 percent need replacement of roofs, 10 to 15 percent need new floors and 10 percent need repairs or replacement of exterior walls. The estimated cost of repairs and alterations needed to put these houses in good, livable condition would amount to three and one-half billion dollars or about $575.00 per house. This is several times the amount farmers feel they can spend for the work at present according to the survey. The survey showed that more than one million new farm houses were needed but that less than one-fourth that number would be built in the next three years. With the betterment of financial conditions in rural districts, however, we may expect a revival of building and repair work.

During the year of 1934, the United States Department of Agriculture through its cooperative extension work in agriculture and home economics in the various States, assisted a great many farm people to secure information as to rebuilding and repairing their farm homes. Through county agricultural agents and home demonstration agents, plans were furnished for the construction of 1,978 new farm dwellings in 385 counties and for the remodeling of 5,987 farm houses in 469 counties. Instructions were given for the installation of 3,917 sewage systems in 547 counties, 3,156 water systems in 543 counties, 634 heating systems in 134 different counties and 2,213 lighting systems in 312 different counties. In other words, 17,885 farm homes were made more comfortable through the agency of cooperative extension work. These figures take

into account only cases where specific work was done by the agent but do not consider the thousands of improvements which may have resulted from press articles, bulletins and information given by letter.

You would be interested in knowing the stories which the reports of the county extension workers tell regarding these figures. There was Mrs. R. L. Lownes of Dawes county, Nebraska, who at an actual cost of $17.00 for native lumber remodeled her house and did the carpenter work herself. She insulated the walls with sawdust. Mrs. Grace Smith of the same county made her rented farm home more comfortable by an expenditure of $2.00 for felt window stripping while W. B. Abrahamson of Phelps county, Nebraska was spending $233.00 in remodeling and installation of bathroom fixtures.

During the years 1926, 1927, 1928 and 1929, a campaign for promoting those things which make for comfort in the farm home was conducted by county and Home Demonstration Agents in 31 Nebraska counties. More than 1,100 rural men and women were trained to help their neighbors install septic tanks, water systems and bathroom fixtures. Rural plumbers were interested and assisted by displays and advertising. What the total results have been through the years no one can guess. It is known that in 21 of the counties, 751 septic tanks were built in one year and some 673 water systems installed.

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THE AGRICULTURAL OUTLOOK

A radio discussion between M. S. Eisenhower, director of information, and A. G. Black, Bureau of Agricultural Economics, U. S. Department of Agriculture, broadcast in the Department of Agriculture period, National Farm and Home Hour, Monday, November 4, 1935, by NBC and a network of 50 associate radio stations.

--ooOoo--

SALISBURY:

Thanks, _____.

Today, we present a summary of one of the big news reports of the farm year -- the annual Agricultural Outlook Report. I now introduce Mr. M. S. Eisenhower, director of information for the Department of Agriculture, who will discuss the main features of this year's report with Dr. A. G. Black, chief of the Bureau of Agricultural Economics.

Mr. Eisenhower-----

EISENHOWER:

Thanks, Morse -- and hello, everyone.

Perhaps I should explain a little bit about the outlook report. Throughout the year, voluntary crop reporters, state statisticians, market analysts, economists, and others have kept close tab on the nation's farm business. They recorded size of production, marketings, prices, and so on, both in this country and abroad. In August, the Bureau of Agricultural Economics appointed committees composed of members of its own staff, and representatives of other bureaus, and of the Agricultural Adjustment Administration, Farm Credit Administration, and other Federal agencies to sift and digest all of the available facts on the prospective supply of and demand for each important farm product. They finished their preliminary reports about the middle of October. During the past week, farm economists from the State agricultural colleges and extension services met here in Washington to weigh the information in those reports, and to compare notes on current and prospective conditions in various parts of this country and abroad. From those discussions, Department economists have prepared reports to give available facts, and the best judgment of farmers and economists, on the farm situation during the coming year. So, as farmers wind up this crop year, and start to make plans for a new year, we give you high-lights from the 14th annual Agricultural Outlook Report, released to the public at noon today.

I now present Dr. A. G. Black----

BLACK:

Thank you, Mr. Eisenhower -- and good afternoon, farm and home listeners.

EISENHOWER:

Dr. Black, before we go into the outlook for individual commodities, I wonder if you would give us, briefly, the general over-all picture of the agricultural situation.

(over)

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BLACK:

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EISENHOWER:

Dr. Black, before we go into the outlook for individual commodities, I wonder if you would give us, briefly, the general over-all picture of the agricultural situation.

(over)

BLACK:

For one thing, I take it, you want to know about the probable demand for farm products?

EISENHOWER:

Yes, the demand, including the outlook in foreign markets, and so on.

BLACK:

As far as we can see at present, we expect a better demand for farm products in 1936 than during the present year.

EISENHOWER:

I suppose mainly because of increased industrial activity, and hence greater buying power of consumers in this country.

BLACK:

Yes, because of better business here at home -- and, to a certain extent, because our foreign customers may have greater buying power for our farm products. Thus, we may see some improvement in the foreign market for American farm products, especially for cotton.

EISENHOWER:

But I suppose international trade barriers are likely to continue to hamper us in selling to foreign nations.

BLACK:

Probably so. International trade restrictions still check the sale of many products.

I also want to throw out a general word of caution to farmers that increased production may offset somewhat the higher prices that you otherwise might expect to come with better consumer demand.

EISENHOWER:

With that general picture of better demand in prospect for farm products, let's go briefly into the situation of the main farm products.

You mentioned cotton. I believe you suggested the possibility of a better market next year for American cotton in foreign countries.

BLACK:

Yes. There are several factors favorable to larger cotton exports. For one thing, the prices of our cotton are somewhat lower than a year ago -- and, also, lower compared with the prices of foreign cotton.

EISENHOWER:

I take it the prospect of better business and more incomes for American wage earners is another favorable sign for cotton.

BLACK:

Naturally. When wage earners get more money they can and do buy more cotton products. When industry is more active more cotton goes into such things as factory power belts, automobile and truck tires, and so on.

EISENHOWER:

All right. A favorable export outlook for cotton. Now what about wheat? I know our listeners will want to know the facts about the present and future supply of wheat, along with our position in the world market.

BLACK:

We now have a larger total supply of wheat for use in the 1935-36 season than we would normally use. But, because of the drought and rust, we are short on some kinds of wheat -- hard wheats of good milling quality.

EISENHOWER:

So, we have imported some hard milling wheat for flour.

BLACK:

That's right.

But, with average yields from the wheat acreage in prospect for next year, we will likely produce a surplus of wheat in 1936. Such a surplus probably would bring American wheat prices more nearly in line with world wheat prices so that we could enter the export market in some volume once again. But remember, I don't mean that our prices would go down to where they were when we last exported wheat. In the meantime, the world price of wheat has risen quite a bit.

EISENHOWER:

To sum up, then, the wheat situation next year will depend a good deal on conditions in Europe.

BLACK:

Quite right.

EISENHOWER:

So much for wheat. How does the tobacco situation look?

BLACK:

Pretty favorable -- provided tobacco growers continue to control their production. Of course, the carry-over of tobacco runs larger than usual. But, improved conditions have taken care pretty well of the situation of all of the tobaccos except the flue-cured, fire-cured, and Maryland.

EISENHOWER:

In other words, you think the flue-cured and fire-cured, and Maryland growers should reduce production.

BLACK:

Yes, until their stocks are down to normal.

EISENHOWER:

With that brief story of some of the more important cash crops, let's pass on to a question uppermost in the public mind at present, the outlook for meat animals -- and, of course, along with that the feed situation. How does the whole position look, Dr. Black?

(over)

BLACK:

Well, Milton, our men say that the livestock industries are in the best shape in a number of years to profit from the better business conditions. They have plenty of feed and fewer animals.

EISENHOWER:

But what about the consumers' side of the picture? With the present low number of meat animals, consumers are much interested in possible trends in meat prices.

BLACK:

I think the outlook also is favorable from the consumers' standpoint. We have passed the low point in numbers of meat animals. We expect increases in numbers, especially of hogs. But, of course, the increases in numbers won't affect the market much, if any, during the 1935-36 season. It takes time to feed the increased numbers of livestock up to market weight.

EISENHOWER:

I suppose the increased hog production should begin to affect the market by the latter part of next year.

BLACK:

Yes. The pigs from the spring crop next year will be coming to market during the last three months of 1936, and when they do go to market, the supply of hogs and pork will be larger than it is now.

EISENHOWER:

Well, passing from meat animals to dairying -- does the dairy industry also have a brighter outlook?

BLACK:

Yes, Milton, that's the general opinion.

By the first of next year, the dairy industry will have cut the number of cows down to normal -- that is, to the average, compared with population, for the past 10 years. For at least the next 2 years we see no prospect of any marked change in the number of dairy cows.

EISENHOWER:

But, with more feed available, I suppose you can look for some increase in milk production.

BLACK:

Some, yes. So consumers will be offered more milk and dairy products. But, apparently, the decline in the use of fresh milk and cream has come to a halt. With an increase in their incomes next year, city folks probably will use more milk and cream than they have during the past few years.

EISENHOWER:

Well, things in the dairy industry do seem to be "looking up."

Now, from recent reports, I gather the country's poultry raisers also have seen an upturn in their business.

BLACK:

So far as poultry -- that is poultry meat -- goes, we look for rather short supplies and high prices for the rest of this year and the first half of '36.

EISENHOWER:

What about eggs?

BLACK:

Poultrymen are taking advantage of higher prices. They are producing more eggs -- and probably will continue to produce more on through the fall, winter, and spring. We look for a somewhat better demand for eggs -- but the bigger supply may keep prices from running as high as they otherwise might run.

EISENHOWER:

Then, in general, you look for a favorable egg and poultry market at least until the middle of 1936.

BLACK:

In general, yes.

But, of course, better prices are apt to lead poultrymen to buy, or hatch, more chicks next spring. A bigger hatch is likely to reduce prices during the last half of next year on both eggs and poultry.

EISENHOWER:

Before we leave livestock, I wonder if you would say just a word about the outlook for numbers and prices of horses and mules.

BLACK:

Well, the number of colts raised has been increasing since 1933. But the increase isn't fast enough to replace the older animals that will die during the next few years. The falling off in the number of animals of working age will continue for several years yet.

EISENHOWER:

Is work stock still in pretty good demand?

BLACK:

Yes. And the demand for horses and mules probably will continue strong for the next three to five years. But we don't look for any further large increases in prices.

EISENHOWER:

Well, leaving the livestock industries, let's have a word about truck crops and fruits.

I understand this year's big pack of canning vegetables brought canners low wholesale prices. What effect will that have on the situation next year?

(over)

BLACK:

If canners follow their usual course, they may contract for a smaller acreage of truck crops for '36, and pay somewhat lower prices.

EISENHOWER:

Is the situation pretty much the same with the fresh vegetables?

BLACK:

No. Apparently, commercial truck growers will be able to sell more fresh vegetables in 1936 than in 1935. But prices may run about the same as this year.

EISENHOWER:

I think our listeners would like to hear especially about potatoes. Last week, Secretary Wallace announced potato production quotas under the adjustment program. Does that mean smaller production? If so, what effect will it have on prices?

BLACK:

When you talk about production control, most folks think you mean reduction. I suppose that's natural. But, in this instance, production control probably means larger production than we otherwise would have.

EISENHOWER:

How do you figure that?

BLACK:

Well, this year, the potato industry suffered from a big crop and low prices. Ordinarily in such circumstances, growers would make a big cut in acreage the following year. But, with a control program getting under way, and with quotas calling for only a moderate reduction below this year, the reduction in '36 is likely to be less than it would be without a production-adjustment program.

EISENHOWER:

So, you look upon the potato program as a protection to consumers.

BLACK:

Yes, I do.

EISENHOWER:

Now, as for the fruits, I believe the total acreage in tree fruits has been falling off in recent years.

BLACK:

For 25 years, in fact.

EISENHOWER:

But, in spite of the drop in acreage, production has been increasing.

BLACK:

Yes, with apples, and citrus, and some of the other fruits, the poorer acreage is passing out of production. As young trees on better land come into bearing, production increases. The increase probably will continue.

EISENHOWER:

As we've talked over the various major commodities, we've noted larger production in prospect for some products and smaller production for others. Now, from the consumers' standpoint in particular, the important question is, How does the total supply of food products in prospect balance up? Are we likely to have adequate supplies of food next year?

BLACK:

Well, of course, the drought still casts its shadow over the Nation's food basket -- especially on the supply of meat. But, with a liberal supply of everything except meat, we should have a slightly bigger total food supply available in 1936 than we had this year -- and about the same amount of food as we averaged in the five years before 1929.

EISENHOWER:

So, we seem to have plenty of food in prospect for next year.

Now, when farmers total up their return from those food products, and other products, how will their total 1936 income compare with income for other years?

BLACK:

After they have taken out their production expenses, farmers will have more money left for family living this year than at any time since 1929. We look for the increase to continue on into 1936.

EISENHOWER:

I believe the biggest increases have been in the North Central States.

BLACK:

Yes. But some other regions also have had moderate increases.

EISENHOWER:

Do you have any indication how farmers are spending their additional income?

BLACK:

Farmers used their additional income this year largely for household goods, automobiles, and farm machinery.

EISENHOWER:

That should be interesting news to industry and industrial workers.

How are prices running on things farmers buy?

(over)

BLACK:

The average of prices of things and services farmers use in farm production probably will run a little lower next year than during the present year, mainly because of lower prices for feed, seed, and fertilizer.

EISENHOWER:

Well, in buying those and other commodities, how will the farmer find the credit situation?

BLACK:

We think the farmer will find more credit available from both public and private agencies than at any time within the past several years.

EISENHOWER:

So, summing up the highlights of the 1935-36 agricultural outlook, we see the prospect of more consumer buying power -- a better balance in the production and supplies of the important commodities, with short supplies of meat -- but plenty of food to meet our needs next year -- the best net income for farmers of any year since 1929 -- a slight reduction in the average of prices of things farmers use in production -- and more credit available than for several years.

The prospect seems to look pretty good.

BLACK:

We think it does.

EISENHOWER:

Well, thanks very much, Dr. Black.

Today, Dr. Black and I have covered merely the barest details of some of the more important sections of the 1935-36 agricultural outlook. Within the next few weeks, the full report will be printed and available for general distribution. Beginning shortly, and running on through the fall and winter, the State agricultural extension representatives will talk over with farmers the national and local angles of the outlook, and present charts illustrating the high-lights of the farm situation, at series of local outlook meetings.

Meanwhile, if you want a copy of the 1935-36 outlook report, write to the U. S. Department of Agriculture, Washington, D. C. We will send you a copy just as soon as it comes from the press.

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RURAL PEOPLE ARE LEARNING TO LIVE WELL
WISE EXPENDITURE OF EFFORT

A radio talk by Mrs. Luther May, farm woman, Danville, Kentucky, delivered in the Home Demonstration Radio Hour, November 6, 1935, and broadcast by a network of 47 associate NBC radio stations.

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The expression, "to live well", means to many people the expenditure of large sums of money. During the past few years we farm folk have had little money to spend. The home demonstration program of our Kentucky College of Agriculture which brings us information when our need for help and experience to understand makes it a very vital thing, came to our rescue with a "live-at-home" program. Many farm people have been able, thru the help of this service, not only to uphold standards of living but to go right on improving them thru a wise expenditure of effort.

What constitutes that "good living"? From the baby crying for his milk to the men in the field needing three meals a day, all homemakers know that the most important part of "living well" is being well fed. The provision and preparation of plenty of good, wholesome food, sufficient in quantity and variety for health, and served so it is appetizing and appealing to the family, is a cooperative undertaking for the whole farm family. By careful planning to a garden, using a canning and storage budget for the winter supply of fruits and vegetables, by raising, butchering, curing and canning the home meat supply, by producing dairy and poultry products, home grown cereals and sweets, the rural family may be well fed the year round at a very small cash outlay. The rural family is fast learning the economy of this procedure which conserves the cash income for the purchase of comforts and conveniences which are difficult or impossible to produce. Last year over 1,100 families in Kentucky reported meeting the requirements of a canning and storage budget for the first time. Seventy of these were in our own county of Boyle.

Living well also means being well clothed. No longer are we able to distinguish between farm and city folks by their dress. The rural woman, thru the home demonstration program, has learned something of textile and other clothing values, she has developed skill in the making and remodeling of garments, blocking and trimming of hats, home care and cleaning of clothing. Thru this information, she has been able to stretch her clothing dollar and to dress her family smartly and well on a much smaller clothing budget than her city sister. One of my neighbors last winter reblocked her 16-year-old wedding hat and wore it with pride. Homemakers in extension groups made or remodeled over 48,000 garments and hats last year. This work represents $56,000 worth of wisely expended effort beside giving the members of the farm family a feeling of personal pride.

We farm people in the past have been prone to overlook the importance of beauty in our surroundings. This love of beauty which is inherent in every human being has been fanned into flame by the program of landscape gardening and home improvement brought to us thru the home demonstration service. One has but to drive down our country roads to be impressed with the improvement that has been made in rural homes - plantings of trees, shrubs and flowers, well-cared-for lawns, painted buildings and removal

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of unsightly things. The number of rural homes reporting exterior improvements runs into the thousands and it is safe to say most of these improvements represent expenditure of effort.

Within the home which the home demonstration program has reached, you will find a woman making the most of what she has. We have been taught to refinish, slip cover and upholster furniture, to reseat chairs, to hook, braid, weave and crochet rugs from old materials, to make many small articles of household furnishings. The magic of color has been brought to us and every day we find new ways of applying this information. We are learning to discriminate between what is cheap and faddish and what is permanently beautiful. Our eyes have been opened to the beauty in commonplace things about us. Sweet potato vines, old stone jars, burlap and cotton feed sacks, when properly used, add beauty to our homes. Thirteen hundred and sixty-nine pieces of furniture were reconditioned last year by Kentucky homemakers and over 10,000 major room improvements were made. We are achieving this beauty thru intelligent selection of furnishings to be purchased and thru wise expenditure of our own effort.

We have even been able to add, thru our own efforts, conveniences, simple water systems, built-in storage facilities, all kinds of homemade gadgets and devices to lift drudgery from the shoulders of rural homemakers. More than 2,000 rooms have been rearranged for comfort and convenience.

Thru better methods of work, family cooperation and planning, we are gaining more leisure. The Extension Service which has widened our field of interest and the scope of our activities is helping us to use this leisure in worth while and satisfying ways. We find rural homemakers enjoying good reading, appreciating good music, taking part in community recreation, school and church activities, holding memberships in homemakers' clubs, garden clubs, enjoying out-of-door sports and acting as leaders in all phases of community activities, all of which give us much joy of living.

Gradually modern consolidated schools are dotting our countryside, thru the effort of rural people to secure for their children educational opportunities equal to those enjoyed by other youth. The opportunity for high school education in rural communities is creating a desire for higher education. Farm families are finding ways and means of sending their children to college. One mother said to me, "I expect my daughter to ride thru college on her Jersey cow." By saving all the premiums won on her cow in 4-H shows and by achieving a dairy scholarship thru her efforts, she finished her college education. Other farm children, with the help and encouragement of 4-H club work, have been able to turn their skills and abilities into a college education.

Let me in conclusion repeat that rural people, thru wise expenditure of effort, are securing the necessities, comforts, conveniences and even luxuries which are essential to "living well". In addition, they are gaining those educational, social and spiritual opportunities without which there is no such thing as "living well".

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LOOKING FORWARD

A radio talk by A. M. Eberle, Director, Extension Service, South Sakota State College, Brookings, South Dakota, delivered in the Land-Grant College Radio Program, November 20, 1935, and broadcast by a network of 49 associate NBC radio stations.

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As a rule, when we look into the future we study the past and find out the way in which we have come and take such lessons from past performances as meet our present conditions and from them determine what is likely to happen in the future.

The past performances of the agricultural extension services have been outstanding. Reviewing its achievements will be of great help in looking forward. It has assisted in meeting every agricultural emergency since its inception some twenty years ago. It met satisfactorily the boll weevil outbreak in the South. It has assisted farmers in meeting the problems of efficient production, in maintaining the fertility of the soil, in increasing the quality of their livestock, and in improving their marketing practices. During the World War it was one of the principal agencies that taught farmers how to increase production and was a big factor in helping win the war by seeing that adequate supplies of food products were raised to feed the armies and for home consumption. Since then it has assisted farmers by teaching them how to produce more efficiently in order to meet the continually widening disparity between the things they have to sell and those they have to buy. During the present emergency the the extension service is again playing a large part. In the drought of the last several years it has assisted farmers in securing feed supplies, it took the lead in the government's cattle buying program and here performed a service never before accomplished by any other agency. It has handled the educational phases of the AAA programs and through its services made it possible for farmers of the nation to organize themselves in a few months time on a commodity bases to meet the over-production problem. By bringing supplies more in line with demand it has been possible to raise agricultural prices closer to parity. So through all the years the agricultural extension service has met successfully each emergency as they arose and is now being called upon to play a large part in this reconstruction period in bringing agriculture on a sound basis. It has never had so much to look forward to as at this time. The rehabilitation of the great agricultural industry is a challenge to its ingenuity and ability.

The adjustment programs have consumed a lot of its time. The emergency phase of these programs is passing and as they assume a permanent place in our agricultural industry, extension will be responsible to assist farmers to incorporate them in their everyday operations. There are many other adjustments the extension service must assist farmers in making, some of which I would like to call to your attention.

The question of proper land use needs greater consideration than it has been receiving. Adjustments between different sections and regions of the

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nation needs serious study. The returning to grass of thousands of acres of land not fit for farming is a very important problem that requires definite action. The conservation of our soil and water resources taxes the ability of everyone connected with agriculture. For many years we have been tilling our soil without regard to conserving its fertility or moisture content. We have been tilling our land and digging deep drainage ditches along our highways so that the water would run to the sea at a greater speed. We have made it possible to kill off all our beavers so that natural dams have become a thing of the past and creeks and rivers can run without interference and hasten to empty themselves into the oceans. We have been destroying our woodlots without making plans for replacements. We now realize that if we are to have a permanent agriculture these conditions must be corrected and instead of continuing with a haphazard agricultural development, it is necessary to more or less plan its future course. Extension will be called upon to take the lead, a natural responsibility thrust upon it because it is the only agricultural service in existence that belongs to all the farmers and can work unbiased and unselfishly in their interests. They have a big job, even though other agencies of the government may handle some particular phase of the agricultural problem, extension has the responsibility of taking the results of their findings to all agriculturists. The soil conservation service, the forestry service, the experiment stations, and the land-grant colleges have a vital place in the development of a long-time program for agriculture, but the extension service must take the results of their findings to the farmers and present them in such a way that it will be accepted by them, for, after all, improved practices are of no value unless the individual accepts them and makes them a part of his everyday operations. The extension service has accepted the responsibility and in doing so is looking forward to accomplishing a greater work in developing agriculture than it has at any time in its 20 years of existence.

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WHAT LAND-GRANT COLLEGE WORK HAS DONE TO MAKE POSSIBLE THE PRESENT ADVANCE IN SOLVING AGRICULTURAL PROBLEMS

A radio talk by Edward C. Johnson, Dean of Agriculture and Director of the Agricultural Experiment Station, Pullman, Washington, delivered in the Land-Grant College radio program, November 20, 1935, and broadcast by a network of 49 associate NBC radio stations.

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Advance in solving agricultural problems is under way on many fronts. Contributing forces are not limited to any group of people or to any one set of institutions. Included among them are the thinking of farm folks themselves, the planning of leaders in many walks of life, and the work of governmental agencies and educational institutions dedicated to public service.

Among the latter, the land-grant colleges have helped to make possible the present advances. By statute, these institutions are expected and required:

(1) "To teach such branches of learning as are related to agriculture and the mechanic arts;"

(2) "To promote scientific investigations and experiment regarding the principles and application of agricultural science;" and

(3) "To aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics" and to encourage its application.

To conduct research, to teach, and to be of service are primary functions of the land-grant colleges. Because these have been well performed, many of today's advances in the solution of agricultural problems are possible.

I could cite many illustrations of the help given by land-grant colleges. They have introduced into their states crops of pure and improved strains developed by testing of varieties from all corners of the world and improved by selection and breeding. Farmers use these new and improved varieties because they are better than the old, either in capacity to yield abundantly, in resistance to disease or to drouth, in quality, in flavor, or in other desirable characters.

Concurrent with the great advance in plant improvement has been the accumulation of knowledge about soils, fertilizers and soil management. This today points the way to good agricultural practice, conservation of fertility, and erosion control.

The advance made by research in the understanding of plant diseases and insect life is the guide to pest control in orchard, field, and garden. Without this information, many farmers not only would be harder put than they are today, but commercial production of such crops as apples, oranges and many vegetables would be practically impossible.

Results of feeding and nutrition experiments and research on the control of animal diseases are proving of great value to the livestock industry in the

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conversion of pastures, forages and feeds grown on lands heretofore in wheat, cotton, tobacco, or corn, into meat and milk, poultry and eggs.

But the results of the agricultural research of land-grant colleges have not been limited to the field of production. They extend also into the economic and social field. Increasingly these findings have been the basis of legislation and public policies in land and animal disease control, feed and fertilizer control, food inspection, sanitation, quarantine, rural taxation, and agricultural adjustment. Many of the most progressive laws on the statute books today are a direct result of this work, and practical agricultural adjustment policies could not be developed without it.

But perhaps the greatest contribution of the land-grant colleges has been the preparation and training of leaders. Many leading farmers in every state were trained in these institutions. If you examine the roster of the U. S. Department of Agriculture, you will find that a large proportion of those who are planning and administering agricultural policies, conducting research, or engaged in educational and adjustment programs have been trained in the land-grant colleges and universities. Included in this group are the Secretary and Assistant Secretary, directors, bureau chiefs, and many staff members in every bureau and office. The large majority of those in administrative and research positions in the state experiment stations and in teaching agriculture in the colleges are the products of these institutions. The Nation-wide forward looking Extension organization in the main is the product of the land-grant colleges. The directors and regional conservators, project leaders and assistants in the great soil conservation program have been recruited primarily from the graduates and staffs of these institutions.

The demand for the services of the land-grant colleges in the solution of agricultural problems is growing from day to day. Their past work, their present activity, and the public confidence which they enjoy, justify the faith that they will continue to measure up to their responsibilities and opportunities.

# # # # #

ULTIMATE BENEFITS TO BE DERIVED FROM THE COORDINATION OF RESEARCH AND TEACHING IN HOME ECONOMICS

A radio talk by Pearl S. Greene, Head, Department of Home Economics, Orono, Maine, delivered in the Land-Grant College Radio Program, November 20,1935, and broadcast by a network of 49 associate NBC radio stations.

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The century of progress which Chicago celebrated so effectively was an age of magnificent achievement in physical science. Engineering and Agriculture gave us the makings of a new material world. But we gained much less in ability to live effective and satisfying lives in that brave new world. Such a task lies ahead.

The gains of the past century have been based on research and teaching motivated largely by zeal for material production. Progress in the new century must come from research and teaching, motivated by an insistent demand to preserve human values. In such a program, the physical and the social sciences will cooperate. And Home Economics will have a responsibility comparable with the strategic position it occupies.

For home economists are concerned with the whole well-being of the normal, garden variety of family; they are interested in helping better the daily lives of the individual and the family.

In such a situation, research that does not find its way into teaching is useless. And teaching without research is superficial. In the absence of scientific knowledge, a certain leveling up of existing practices may be achieved by picking out the best existing practice. But teaching which stays at this level becomes superstition and quackery in a world of science: and its very objectives, if not subject to re-examination in the light of science, become sentimentalities.

Recently, I saw a rural woman demonstrating a good school lunch for the rural child. Among other things, she recommended a simple sandwich filling of chopped raw vegetables. But she told her audience of the physical defects and dietary deficiencies which had been found by research workers among rural children in their own state, and she explained how the vegetables were valuable to prevent these defects and correct these deficiencies. The materials could be grown and stored at home, the receipe required little time, and was palatable. Back of the simple, concrete recommendation was the whole history of research in human nutrition, a special study of conditions in the state, and skillful adaptation of the teaching to local resources.

But even while we offer as tentative solutions the best that science can afford at the moment, continued research must look for better solutions. In nutrition, our knowledge is far from adequate. What is optimum human nutrition? What is optimum growth rate? Optimum diet? How necessary are the "trace" minerals? Are there additional vitamins? How are the various nutritional requirements interrelated? What is the effect on nutritive value of the new food processing methods which were adopted only yesterday? Such are only a few of the unanswered questions. We have hardly more than begun to set up the idea of optimum human nutrition as the goal toward which to direct our studies of land utilization, plant and animal breeding and nutrition, and food processing.

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Inadequate as is our knowledge of nutrition, it is far in advance of our scientific knowledge in other fields of Home Economics. Textiles, housing, child development, and the economic and social problems of the home are in crying need of research motivated by interest in the well being of the family.

In all these fields, it is evident that the co-ordination of teaching and research means more than seeing that Home Economics teachers make use of results of research by Home Economists. It means finding and applying new knowledge in any science which throws light on the problems of materials, techniques, management, and relationships in the home. It means finding in the home, questions which must be answered in the laboratory, and referring them to suitable agencies with available resources, adequate techniques, and without biassing commitments to other interests. And in as much as few such agencies exist, it means greatly increased support for the strictly Home Economics research agencies, such as the Bureau of Home Economics and the Home Economics programs of the State Experiment Stations. It means training students in college in a research atmosphere; so that as homemakers they will be alert to new scientific material, as teachers they will base their instruction on it, or as researchers they may contribute to it. And fundamentally, it means recognition that many problems of the public interest need to be approached primarily by studies from the angle of consumer welfare.

A strong and well-coordinated program of research and teaching in Home Economics offers one of the most effective means of translating our increasing power over nature, into an increasing fullness and satisfyingness of every day human living. This is its ultimate value.

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OLD MAN RIVER - THE NATION'S PROBLEM

A radio talk by Abel Wolman, chairman, Water Resources Committee, delivered in the Department period of the Conservation Day program, Friday, November 22, 1935, and broadcast by NBC and a network of 60 associated radio stations.

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Anne Morrow Lindbergh in her book, "North to the Orient", speaks of the Yangtze River in China as "One of those rivers which give the impression of being the only true and permanent rulers of the earth". From the air, she says, rivers are seen in their true stature.

"They tumble down mountain sides; they meander through flat farm lands. Villages trail them; cities ride them; farms cling to them; roads and railroad tracks run after them - and they remain, permanent, possessive. Next to them, man's gleaming cement roads which he has built with such care, look fragile as paper streamers thrown over the hills, easily blown away; even the railroads seem only scratched in with a penknife. But rivers have carved their way over the earth's face for centuries and they will stay."

Thus in a few beautiful prose terms Mrs. Lindbergh describes the significance of Old Man River in a nation's life more adequately than do all the technical volumes on the library shelf.

As she later points out the river can be not only a friend but an enemy; not only at peace, but in revolt. She saw it in flood "destroying the fertile plains it had once made, breaking dykes, carrying away villages and destroying valleys. --- A huge lake smiling cat-like, horribly calm and complacent over the destroyed fields and homes of millions of people. And again, an angry sea, its muddy waves battling down homes; or a turbulent stream spouting through a break in the dyke. But always in the center of the wide area of destruction, that roaring torrent, darker and more turbulent than the rest, the very heart of the river gone mad with power, carrying all in front of it; houses, trees, boats, live stock and coffins - inevitably swept along to the sea."

Even when calm, the river may disappear to nothing and then men's parched tongues give silent tribute to the all powerful influence of this necessity of life. When railroad tank cars are eagerly awaited at the station to bring water for whole communities, then once more it is recognized how dependent man is upon this ever present and erratic gift of nature. Then he is reminded, perhaps, of army marches in desert land when after a day's march on the salt desert's brink, man, horse, mule, camel and other animals take their turn at the water hole. As one army officer put it "Each cup of tea worthy of a special caption in a modern journal".

When the drought is followed by the high winds then we have the horrible picture of the Kansas dust storms, the result of water erosion and wasteful methods of farm tillage. Then with nature's cynical turnover, the rain begins, the flood recurs and man stands helplessly by watching the cycle of destruc-

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tion as the pendulum swings from drought to flood.

How long will it take man to learn that land, water and people go together. As the Mississippi Valley Committee so aptly phrases it, "A drainage basin, big or little, is a region through which water moves. No act of man can permanently halt its flow of power, nor even diminish it to an appreciable degree. The water must come down - we could not stop it if we would. We can, however, figuratively as well as literally, canalize it so that it will do what we want it to do and will not do what we do not want it to do."

How has man so far succeeded in harnessing the river to his own advantage? Although there are examples of accomplishment throughout the United States in this field, the failures of accomplishment of control and the number of problems so far unattacked are so staggering in their number and extent that the nation has before it a tremendous problem of investigation and ultimate planning for the best use of its rich heritage of streams.

On the Mississippi River alone, so accurately designated by one author as "the very bowels of the nation", the problem almost exceeds our capacity for review. This River comprises five great drainage basins, the Upper Mississippi, the Ohio, the Missouri, the Southwest and the Lower Mississippi. The Missouri basin alone exceeds the area of Germany, France and Italy combined. Forty-nine million Americans live in the Great Valley, on approximately one and a quarter million square miles of land, the source of the great staple crops of this country, of enormous mineral resources and of a once vast forest coverage. This potential wealth is statistically overwhelming, but too great a part thereof has already been dissipated through our profligate failure to conserve its values.

When we turn to the streams in the arid west, the problems are multiplied many fold. In almost every State of this region internal and external conflicts on the uses of water are at hand. As one attorney, representing a group of riparian owners in the arid west recently stated, in one of these controversies: "This is the most important matter ever heard in Nebraska. If we are right, there are millions of dollars involved in this contest and the rights of thousands of people at stake". If we substitute for the State of Nebraska the name of any other State in the arid west, the same statement would apply with similar accuracy and equal force.

In the humid east, the Connecticut, the Delaware, the Potomac and the Susquehanna Rivers, to mention only a few, present problems of unsolved coordination in the fields of power, flood control, stream pollution, domestic water supply, navigation and soil erosion.

As already pointed out, long term planning for the ultimate solution of these difficulties has been conspicuous by its absence. The extension of such planning implies a continuation and strengthening of our whole national program for the collection of hydrologic data, so that our bookkeeping system of river flows, of rainfall, of snow fall, and the like, may sometime reach the stage which even the simplest private industry would consider absolutely essential for its continued existence.

In addition, elaborate and even costly studies are necessary for the interpretation of such basic information, in order to derive therefrom carefully projected undertakings for all of the watershed areas.

In each of these areas, some one must some day determine upon how best to reconcile the necessities of flood control, power, irrigation, navigation, recreation and wild life, domestic water supply, soil and coastal erosion and waste disposal and to balance the conveniences likely to emanate therefrom.

Obviously the undertaking for a country the size of ours is stupendous. But upon it depends the future life of our people. Implicit in it is the necessity for plan. The Mississippi Valley Committee, the Water Resources Section and now the Water Resources Committee of the National Resources Committee have been making efforts in this direction. The progress will be slow, but the returns in real fruits to the nation are great.

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THE NEW DISCUSSION SERIES

A radio program broadcast Monday, December 2, 1935, in the Department of Agriculture period, National Farm and Home Hour, by NBC and a network of 50 associated radio stations.

--ooOoo--

SALISBURY:

The series of Farm and Home Hour programs of early 1935 which aroused the most interest among you listeners was the one we issued in February and March for the assistance of members of rural discussion groups in 10 different States. We then presented to you Department of Agriculture staff members who advanced for your consideration different points of view toward questions of national policy such as "What Sort of Foreign Trade Policies Do American Farmers Want?" and "What Sort of Rural Life May We Look Forward To?"

The Land Grant Colleges, the farm organizations, and the Department of Agriculture are working together again this winter to provide discussion groups with materials that they may use in considering vital questions.

I know all listeners would like to have a report on the progress of this idea since the conclusion of our broadcast series last April. So I have asked the Assistant Secretary of Agriculture, Mr. M. L. Wilson, to talk with us briefly today, giving such a report and some comments on the season soon to open. Mr. Wilson.

WILSON:

Thank you, Morse, and good day to all listeners.

I'll make this report brief. Early in the Summer, we got report from the 10 States where farm people had called upon the State colleges and the Department for help in training discussion leaders and in getting summaries of the widely-held viewpoints toward the matters they were discussing.

WILSON (Continued)

The reports agreed that farm men and women -- and boys and girls too -- wanted more of the same sort of assistance in threshing out for themselves public problems. So we in the Department acted as hosts at a meeting of representatives from all the Land Grant Colleges and the farm organizations to see if these agencies would go ahead helping to organize discussion groups and train leaders. It was the sense of the meeting that the colleges and the farm organizations should meet the call from farm people for help, and that the Department should also help by supplying summaries of opinion. Accordingly, all of us laid plans for more and better assistance to discussion groups among farm people during the Winter and early Spring.

Mind you, this thing, if it works, will work because the people in some thousands of farm communities want it. The organization people and the college people and the Government people can give aids to the farm people who want to take part, but they can't and won't try to high-pressure anyone into taking part.

Morse, I think that's the outline of the thing.

SALISBURY:

Well, M. L., I thank you, but I think you have omitted one thing. I mean to say you haven't explained the difference between the discussion method and the debate or the forum, or other methods of arguing public issues.

WILSON:

I think you have pointed the difference, Morse. The members of the discussion group don't go into a session with sides chosen up and everything set for a hammer and tongs battle of words. They meet to give every member of the group a chance to express his honest views. They don't aim to down anyone in argument. There isn't any urge to reach a snap decision, to have a vote of

WILSON (Continued)

judges, to have one side win, another side lose. There is a desire to help members of the group along with the type of thinking which has enabled the race to progress from the dawn of time -- reflective thinking -- not emotional unreason, or partisan fervor, or blind devotion or blind hate.

But it's impossible just by talking about it to give the atmosphere of a discussion group to people who haven't been members of one. If the idea interests anyone listening today, I suggest that he call upon his county agent to learn whether discussion groups are being formed in his county this year. If they are, they will be discussing some of the national issues on which we have prepared materials summarizing various schools of thought, or some of the State of local issues on which the State colleges have prepared materials.

Morse, perhaps you might read the Farm and Home Hour audience the list of topics on which materials are available from the Department.

SALISBURY:

All right, M. L., I will. And then, I'll try my hand, with the connivance of Shannon Allen of the NBC Washington staff and a group of his radio players, at stating some of the viewpoints toward the first question on the list -- the one up for discussion in many of the groups that are starting -- in counties of 39 States -- this week.

That question is:

"What is the Chief Cause of the Farm Depression?"

I think that will provide fodder for an evening's discussion.

Here are the remaining topics in the list of national problems to be considered by discussion groups among farm people:

Do Farmers want the Federal Government to Deal with Farm Problems?

Should American Agriculture Seek Recovery of World Markets or Arrange to Live at Home?

What Kind of Foreign Trade Policies do American Farmers Want? In Peace Time? In War Time?

What Kind of an Industrial Policy is Best for Agriculture?

The Farmer and the Consumer of Farm Products -- What, If Any, are Their Responsibilities to One Another?

Do Farmers Want High Tariffs on Farm Products? On Industrial Products?

Should Farm Benefit Payments be Abolished?

Farm Prices -- How Are They Made?

What Kind of Land Prices Would Be Best for Agriculture? For the Nation as a Whole?

Will Crop Adjustment Be Necessary or Desirable in Years to Come?

What Possibilities and Limitations do Farmers in this County Face in Seeking a Better Balance in Farm Production?

What Objectives are Desirable for Farming as a Business? As a Way of Life?

What Should Farmers Seek to Accomplish Through Organization?

Now, to give you an idea of the variety of viewpoints you are going to find toward the knotty national problems posed for discussion by the groups this Winter and Spring, let's take a rapid-fire view of some of the opinions you might expect to find expressed in any rural discussion group on the question for this week: "What Are the Causes of the Farm Depression?"

I'll act as chairman, and my discussion group will come to order. (Sound of knife on table)

Firends, What is the chief cause of the farm depression?

JOHNSTON: (Deep voice, rather rapid.)

The whole trouble grew out of the War. Europe quit farming and went to fighting, and we plowed up our prairies and woodlots to produce her food. Then Europe quit fighting and went back to farming, and now we can't sell farm products to her any more.

(CONTINUED ON NEXT PAGE)

McLEAN: (Starts slow, speeds up as mind gets the words he wants.)

There's a lot to what you say, Jim Johnston. But you haven't got the whole answer. It sounds funny coming from a Scotchman like me, Angus McLean, but the trouble was partly TOO MUCH held in reserve. Carryovers and surpluses, they were at least one cause of farm depression.

CORDLEY:

You fellows haven't mentioned one thing -- that's foreign trade barriers. Our own included. The nations of the world have built Chinese walls of tariffs around themselves. So how can you have world trade in farm products?

FOLSOM:

Cordley, you've got sense. But you haven't gone quite far enough. Wipe out tariffs and other trade barriers the world over tomorrow, and some of our basic crop farmers would still be in hot water. How can our higher cost land and labor compete in let's say the world wheat market with the cheap new lands of other wheat countries? We've just got to take what the still older wheat countries took when we got into the game. We're no longer the low cost producers and we can't compete for the world market.

MRS. LYONS:

Folsom, you've put your finger on one cause of trouble. But you haven't stated it just right. Our costs are too high because we ran our land prices too high in the speculation days after the war.

MacGREGOR: (Same voice as McLean)

Yes, Lyons, and piled up debts we couldn't carry when prices of our products went down.

NORRIS: (Same voice as Johnston)

No more can we pay the high taxes, MacGregor. That's the nub of the trouble.

SHAFFER: (same voice as Cordley)

That's right, Norris. Especially when the cost of producing a bushel of grain or a pound of meat stays up because we use so much machinery.

ROSS: (Same voice as Folsom)

Maybe that would be all right, Shaffer, if the price of machinery would come down when the price of crops comes down. But it doesn't. City prices hold up pretty steady. Ours go up and down like elevators gone mad.

MISS RILEY: (Same voice as Mrs. Lyons)

Yes, Mr. Ross, and I've noticed another thing. In my school we're crowded to the doors. In 1926 when the new schoolhouse was built I thought I was through teaching overcrowded classes. But since 1929 the young folks that went to the city have come back, and no more young folks are going to the city, and we are just overcrowded. Know what that means? It means each acre of land has to support more farm people. Unless prices go up that means lower standards of living.

SALISBURY:

Well, we'd like to stay and hear more. Our discussion group hasn't got around to mentioning such fundamental causes of trouble as increasing farm tenancy, and faulty use of the land, and soil erosion, and other causes of the farm depression that loom large or small to you according to the conditions in your community.

How would you like to take part in such a discussion? And if you did, what would you say is the chief cause of the farm depression:

Does it lie in Europe, in Wall Street, in Washington, right in your own backyard?

SALISBURY (Continued)

Is farming depressed because of loss of foreign markets, low prices, world trade barriers, too much mechanical power and not enough draft animal power, poor credit arrangements? Or something else?

Well, we could go on far, far into the afternoon, but I know you want to hear some more from the International, so we'll quit Washington, only pausing to remind you that on Thursday next we'll have another rapid fire discussion of the discussion group puzzler for the second week of December: "Do Farmers Want the Federal Government to Deal with Farm Problems?"

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QUESTIONS AND ANSWERS

Interview between John R. Fleming, assistant director of information, and Morse Salisbury, broadcast Tuesday, December 3, 1935, in the Department of Agriculture period, National Farm and Home Hour.

--ooOoo--

SALISBURY:

As announced previously, Secretary Wallace cannot be with us in the Farm and Home Hour this week. He is somewhere out in the country today, I believe in Illinois, a good many miles from any broadcasting station. But next Tuesday he will be back with us, and according to present plans will speak to the radio audience from Chicago, where he will be attending and addressing the annual convention of the American Farm Bureau Federation.

Today John R. Fleming, assistant director of information, is to acknowledge on Secretary Wallace's behalf a few of the many good letters that listeners have sent him, and devote a few minutes to answering questions that have come in lately. I don't know how many of these we can get through today, but we'll answer as many as we can.

FLEMING:

Morse, perhaps we'd better explain that not all of these letters contain questions in the ordinary sense of the word. Several of them contain misconceptions of the facts and circumstances. And that isn't surprising, when you consider the number of complex facts the average citizen is expected to know these days.

SALISBURY:

No, I should say it isn't surprising. But let's get along, Jack. Here's the first letter on the stack. It looks interesting. Comes from Naperville, Illinois, and asks about the truth of a story that appears in the December issue of one of our most reputable magazines.

FLEMING:

Will you read the extract he quotes from the magazine article, Morse?

SALISBURY:

Yes, here it is: (Quoting) "Lately, a retired clergyman.....made a visit to his old home in Maine. He talked with friends of boyhood and early manhood, and among the stories they told him was one of a widow doing her best on a farm. She had butchered two hogs for the use of her family. Some time later, Federal employees heard of her action and called on her. She told them that she had raised the two hogs and had butchered them and was using the meat in her home. They laid upon her penalties of eighteen dollars, which she paid out of her scant store. 'I would not,' said the minister in his quiet and gentle voice, 'have supposed that such things could happen in our country.'" (End of quotation) Well, what about it, Jack?

(over)

FLEMING:

First, what did the man who wrote this letter to Secretary Wallace think about it?

SALISBURY:

That's just the point: he doesn't know what to think about it. Here's what he writes: (quoting) "Inasmuch as this appears in a reputable magazine, I am almost inclined to believe this statement concerning the experience of this widow in Maine. After hearing you (he's referring to Secretary Wallace, of course) in that series of addresses in Mandel Hall, Chicago, and having this first-hand opportunity to hear you state your basic philosophy regarding agriculture, with which I am in hearty accord, I cannot imagine an incident like this taking place with your full consent. So I am in a quandary. Is the above incident true?" (End of quotation) What is the answer, Jack?

FLEMING:

Well, Morse, if all the circumstances were given in the story only one of two conclusions is possible: Either the story has been made out of whole cloth, or an agent of the Federal Government has defrauded a poor widow out of eighteen dollars, and there is a tough time ahead for him.

SALISBURY:

But what if the circumstances were not all stated?

FLEMING:

There is that possibility, all right. At any rate, I asked the corn-hog section of the Triple-A to investigate, and see if any such circumstances existed in connection with a corn-hog contract in the state of Maine. It didn't take them long, because there are not so many hog growers in Maine. Here is what the investigator reported:

"Maine had seven corn-hog contracts in 1934 and ten in 1935. Payments have been made by the Government on all of them. There have been no suspensions and no penalties on any of them. The contract signers are apparently all men. So far as we can tell from their names, no women in Maine have signed corn-hog contracts."

Does that answer the question, Morse?

SALISBURY:

If the story were told on the basis that the widow were a contract signer, Jack. But suppose the basis of the story was that the widow wasn't a contract-holder, what then?

FLEMING:

There is that possibility, of course. But whoever first related the story forgot that there is absolutely nothing in the Agricultural Adjustment Act to prevent anyone -- man, woman, or child -- from raising and slaughtering hogs for use

at home. There is no processing tax on hogs so slaughtered, and therefore there can be no penalty for any alleged non-payment of the tax. That's why I said a while ago that either the story is made out of whole cloth, the invention of some neighborhood gossip, or else a Federal agent has had the audacity to defraud a poor widow. I don't like to believe either of those, but some acquaintance with both neighborhood gossips and Federal agents leaves me more inclined to put the blame on the neighborhood gossip. These processing taxes are collected by the Bureau of Internal Revenue of the Treasury Department. The Internal Revenue agents have an extremely good reputation for honesty and devotion to duty. I imagine the Bureau of Internal Revenue would wish to hear at once of any such episode, and determine the truth of it.

SALISBURY:

Well, I suppose that answers the question, Jack, as well as it can be answered at this distance. From the facts you have given it begins to look like one of those neighborhood stories that grow like snowballs. It's always puzzled me how such things do get started. But they seem to, and I suppose that I'm guilty now and then, along with the rest of the quidnuncs, of passing a juicy piece of gossip along.

We've got to speed up, Jack, to get any more letters in. Here's a letter from a woman in St. Louis -- doesn't give her address, unfortunately, so we can't write her. Anyway, she mentions the talk Assistant Secretary Wilson read on November 18th for Secretary Wallace, and says she "was amazed to hear you say a farm family of four could not live on $540 per year" for food expenditures. What about that?

FLEMING:

Apparently she didn't catch the word "non-farm." Throughout that speech the Secretary was talking only about the food expenditures of non-farm families. He couldn't say city, because he wanted to include families in small towns, so he used the expression "non-farm." Sorry that correspondent didn't give us her exact address so we could send her a copy of the talk.

SALISBURY:

Perhaps she's listening today and will forward her address if she wants a copy of the talk. Here's another letter referring to the same speech. This letter comes from Canton, Ohio, and observes that (quoting) "the figure for average worker given" -- $1500 a year for one-third of 22 million non-farm families -- "was way ahead of that amount paid here..... Curs averages $650 to $700 a year." (end of quotation) How about that, Jack?

FLEMING:

I feel sure the Secretary didn't mean to leave the impression, Morse, that $1500 a year was the average annual income of that third of our non-farm population with the lowest incomes. Here's what he said:

"The 22 million non-farm families in 1929 fell into three income groups. The lowest third -- about 7½ million families -- had to get along in 1929 on less than $1500 a year; the next third -- about 7 million families -- had between $1500 and $2500 a year to live on; the top third had more than $2500 a year to live on." Those were 1929 figures, of course.

(over)

SALISBURY:

I can see how a listener might get confused by those figures, Jack. If our Canton correspondent had a copy of the talk, she might like to study the figures.

FLEMING:

All right, I'll see that she gets a copy. Have we time for any more?

SALISBURY:

Just one. Let's take this letter from a farmer from East Palestine, Ohio. He asks several questions. Here's a good one for you. "If the Triple-A programs are so wonderful," he writes, "why are imports on mostly everything that they control up 10 times to what they were last year?"

FLEMING:

That is a good question, Morse, and it deserves a detailed answer. Right now, since our time is about up, I can only say that the official figures on imports of farm products do not at all support our correspondent's point of view. The peak of imports of competitive farm products caused by the 1934 drought seems to have passed. In writing to him I'll give more details. Perhaps Secretary Wallace will wish to talk about this whole question of imports in the near future. A great many have been asking about them.

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CHRISTMAS GIFTS FROM THE FARM MAY BE PRACTICAL AND CHARMING

A radio talk by Miss Jean McFarlane, Clothing Specialist, Home Economics Extension, University of Wisconsin, Madison, Wisconsin, delivered in the December 4, 1935, Home Demonstration Radio Hour and broadcast by a network of 49 associate NBC radio stations.

--ooOOoo--

As the holiday season approaches our hearts lighten with thoughts and plans of a joyous Christmas. Farm folks who have seen a better year, with good crops and higher prices, as well as those who have had set backs, will celebrate together at this time of peace and charity. It is the thoughtful work, the friendly handclasp, and the kindly greeting that brings true joy and happiness. These are things we all have to give. How true it is that the only things we ever keep are the things we give away.

Let us not make Christmas just a spending orgy, giving more than we can really afford. By so doing we will lose one of the most precious qualities of giving--good will. Let us spend less and wrap more good cheer with each package.

Everyone of your friends can be remembered if you choose your gifts from the things which you have right on the farm. These gifts will need no apology for they can be made both practical and charming.

Do you have some farm products stored away in your cellar that will more than carry your family through the winter? Apples? You need not go futher for your first Christmas gift. Any mother would be joyous over a basket of big shiny red apples to help keep the doctor away when the whole family has been munching on nuts and sweets for days. What goes for apples is equally true of any other fruit you have grown and kept in good condition.

If you raise poultry on your farm you have an unsurpassable gift right at your finger tips. A chicken, duck, goose, or turkey would make a very, very special gift and one you can bank on will not be put away unused.

It may be that you raise sorghum, or perhaps it is maple syrup or honey that you have more of than you can use. If that is the case, anyone of these three will make a gift equally as good and more personal than one you could buy, for you have prepared it yourself.

Packed away in your fruit cellar you may find gifts already to be sent save a piece of gayly colored paper and ribbon. Christmas wrappings--what an important part they play in the charm and excitement--they need not be expensive but they must be attractive.

A country friend as well as a city relative will be pleased with a glass of jelly or jam. Meat, vegetables and fruit canned when they were plentiful make inexpensive gifts. To make them even more acceptable, include the receipt you used. Smoked ham, bacon, or sausage you have made on the farm will be prized because of their home-made flavor. If you have just

(over)

butchered it may be a beef or pork roast that will carry your message of cheer. Wisconsin farm folks are fortunate in having so many fine flavors and varieties of cheese to select from for a gift to a favored friend.

In the minds of most children Christmas and popcorn go hand in hand. Think of the fun and laughter the kiddies will get from a bag of unpopped corn. If you have gathered butter nuts, walnuts, hickory nuts, or pecans, if you live in the south, tie up a nice package of these holiday goodies and include them with your other gifts. Young and old alike will enjoy them.

In Wisconsin we find many uses for pine cones. A very unusual gift can be made by tying up a bundle of cones with red scrim or red mosquito netting and a big red ribbon. This colorful bag about 14" or 15" in diameter can be placed at the fireplace, in a corner, or under the tree. It gives off a pine fragrance and many warm colors when burned in the fireplace.

Try tinting the points of the small cones that come from the Norway Pine tree. Gold or silver paint will transform them into a glittering ornament for the tree. (These same cones may be attached to a stiff card and used on the table as place cards.)

Cat tails and reeds gathered from the swamp combine to make an attractive winter bouquet. Branches of pine needles and bayberry also make unusual gift bouquets because of the traditional wishes for "good luck" that the bayberry carries. Then there is bittersweet which may be just the note of color that will brighten the living room of a friend. Sprays of pepper berries, which are native in some sections of our country, make graceful and cheery bouquets because they may be dipped in a color of paint you desire. Multi-colored gourds in a variety of fantastic forms placed in a simple wooden chopping bowl make a charming center piece for the festive table.

Don't forget that if you fill your house with joy and happiness you are bound to have a Christmas you will never forget.

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DO FARMERS WANT THE FEDERAL GOVERNMENT

TO HELP THEM DEAL WITH FARM PROBLEMS?

A radio discussion led by Morse Salisbury, chief of the Radio Service, and broadcast Thursday, December 12, 1935, in the Department of Agriculture period of the National Farm and Home Hour by NBC and 50 associated radio stations.

--ooOoo--

SALISBURY:

As promised last week, we bring you as one of the features of the Farm and Home Hour today another brief program reporting on progress in the nation-wide organization of rural discussion groups and giving some of the points of view which will be expressed in the hundreds of discussion groups that this week are taking up the second question of national interest to be raised before these groups.

Last week the organization of discussion groups and the discussion of the first topic of national interest went forward in 39 States. Roy Hendrickson, assistant to Mr. M. L. Wilson, the assistant Secretary of Agriculture, has given me some of the reports received from the State leaders of the discussion projects. I have here with me the reports from Watson Dittmer, the leader in South Dakota, and from B. L. Hummel, discussion leader for Virginia. Both indicate the great interest in the free discussion of problems of national, State, and local importance which has been the driving force behind the organization of these discussion projects.

As we get along with this series, I hope to bring you reports from other States about the way in which the people are carrying on their discussions.

(SALISBURY - Continued)

The question being taken up by those groups this week is: "Do Farmers Want The Federal Government To Help Them Deal With Farm Problems?"

Now, of course, there are all sorts of points of view on this matter. It is one of the most fundamental things in our whole idea of the functions of the governments under which we live.

But usually when you analyze the different ideas that you hear expressed, you find 3 basic viewpoints. These viewpoints are held not only by farm people but by city people -- by all people -- and their philosophical root is the matter of whether any sort of business -- farming or otherwise -- should look to the Federal Government for assistance in dealing with its problems.

Let's state these 3 points of view.

Viewpoint number 1:

FIRST VOICE:

The best relationship for the State to have with business is TO LEAVE IT ALONE.

SALISBURY:

Viewpoint number 2:

SECOND VOICE:

The best relationship for the State to have with business is TO BE A POLICEMAN.

SALISBURY:

Viewpoint number 3.

THIRD VOICE:

The best relationship for the State to have with business is TO DO SOMETHING ABOUT IT.

SALISBURY:

Now in any discussion of what help the men in the different lines of business should expect from the Federal Government, in dealing with their problems, you are likely to find that all viewpoints expressed go back to these fundamental attitudes of different types of people. Watch, as we open now a very brief session presenting discussion as it might take place in a farm discussion group, and see if you can't trace the different views back to these 3 forces.

(BABEL OF VOICES)

SALISBURY: (Rapping on table)

Well, let's get down to discussing, friends. I place before you this question: "Do Farmers Want the Federal Government to Help Them Deal with Farm Problems?"

FULSOM: (In a very abrupt, decisive tone)

I say NO, Mr. Chairman. Farm business is no different from any other business. All business does best when left alone so that the individual business men can make free use of their skill and their experience.

MRS. LYONS: (Rather a mild voice)

Does best for whom, Josiah Fulsom? I can see how the individual business man, the individual farmers, might "do best" for himself if he is let absolutely alone, but maybe he's not doing best for the other people in his community.

FULSOM:

Well now, Mrs. Lyons, I don't mean to let people free to rob and steal and cheat; we've always got to be protected against the scoundrel. I mean, we should leave the men of good will in business free to do their level best in fair competition with the other fellows who are doing their level best. In the end, this will bring about the best results for the whole community.

CORDLEY:

I agree. The farmers who settled this continent didn't go running to a Government bureau to find out what to plant and how much to plant of it.

McLEAN:

Well now, Cordley, maybe that's a little bit overdrawn. George Washington wanted some assistance from the Federal Government to the agriculture of his day. So did Thomas Jefferson. And by 1840 our Federal Government began the collection of plant specimens, and by 1862, the same year the Homestead Act was passed, the Federal Department of Agriculture was set up.

CORDLEY:

Well, now, perhaps I ought to soften what I said, McLean. Soften it to this extent: That the farmers who settled this country didn't go running to the Federal Government to get help on their economic problems. Competition, and the motto "Let the best man win" is what has built America. The more completely you can keep the Government out of the business of farming the better off the individual farmer will be.

McLEAN:

Cordley, I admire your find upstanding spirit. But I am afraid that you may not see all the realities of the situation. Business men always have turned to the Federal Government for assistance in dealing with their economic problems. Various groups of business men have had subsidies and have grown fat on them at the expense of other groups of business men, and then the other groups of business men have been forced to fight either to get Federal subsidies for themselves or see that the subsidies and powers given the other fellows weren't abused.

JOHNSTON:

In other words, McLean, you say that the Government has got to play the part of a policeman in regulating competition as well as in preventing absolute, downright, brute-force robbery.

McLEAN:

Very much so, Johnston.

MISS RILEY:

Yes, you certainly do have many instances of the Federal Government acting as a policeman to keep one group of business men from gouging another group. My eighth grade history class pretty soon will be studying the period when so many of these laws came into effect -- the last 30 years of the Nineteenth Century and the first 10 years of this century. Then was when we got railroad and warehouse legislation, public utility commissions, anti-monoply laws, conservation laws, minimum wage and child labor laws, Pure Food and Drugs Act, blue-sky laws, etc.

JOHNSTON:

All those are good illustrations. Laws like the ones you've mentioned, Miss Riley, provide a set of rules to preserve fair play in business competition. Through enforcing these rules, the Federal Government makes business safe in the same way that the county police make homemaking safe by preventing housebreaking and holdups.

McLEAN:

Precisely, Johnston. But remember this, the Federal Government, playing the part of policeman, shouldn't give help in working out problems of different groups in the economic field any more than the local policeman ought to go off his beat and do hired man's work for a farmer. The function of the Federal Government is simply to give police protection, keep monopolies from forming, leave each group free to work out its own destiny.

HOLMES: (Same as Cordley)

Well, I can agree with you up to that point, McLean. I'm all for that. Your policeman kind of economic government is certainly better than government which can't have anything to do with the business life of the people. But I wonder if your policeman State really can give equal economic opportunities to all the people? I especially wonder if your policeman State can give equal economic opportunity to farm people.

McLEAN:

Why do you say that, Holmes? What brings up these questions in your mind?

HOLMES:

I suppose it's my way of looking at things. As I see the real situation that we face today, industry has got to organize for mass production in big corporations, big aggregations of capital and machinery and factories. Now, the policeman State can't get at the operations of these big corporations -- they're not monopolies, they don't misrepresent things. But they do create a situation where the industrial producers can organize themselves much more effectively than the farm producers. And the result is that the farm producers really don't have equality of opportunity.

ROSS:

Well, Holmes, what do you propose our people should do about it?

HOLMES:

Why, Ross, I think they have got to see to it that their central government does something about it. That's why I think that farm people along with other business groups should look to the Federal Government for aid in dealing with their problems. I think our whole discussion here tonight is more or less academic. Whether we believe in it or not, we are going to look for Federal Government action to help us deal with our economic problems.

McLEAN:

Well, you make a convincing argument like a good many people who want to change things radically, Holmes. They are hard as nails about history - - - about what has been. But they go very dreamy about what will be in the future if they get the reform that they want. I won't admit that bigness in Government is any improvement over bigness in corporate organization.

CORDLEY:

I say so, too, McLean. I think we ought to watch out and not let Government get into business at any point. The experience of other countries teaches us that once you start the Government on that course it won't stop. It finally goes the whole way to State control of everything.

MISS RILEY:

Well, I can see how it might, if it weren't that we're sticking to democracy in this country. In a democratic country, the free speech and the free press and the periodic elections correct wrong situations that a bureaucracy might create once in a while. The citizens of a democracy might choose a government with an aggressive economic program. Then if they believed that under such a program equality of economic opportunity is not being secured, the way is open for them to say so.

SALISBURY:

Sorry -- We'll have to leave our discussion group now. I leave with you some of the questions they're mulling over:

Which of these views of the State's relation to business and agriculture do you think is most nearly correct?

How would you state your own view?

Should the Federal Government leave farm scientific experimentation to county and State governments? To private individuals?

Are consumers of farm products entitled to protection by the Government against poor quality, false weight, and high prices?

Should the common economic problems of farmers be left to solution by farm cooperatives, owned, managed, and financed by farmers?

On Monday, January 6, we'll have another discussion. The question:

Should American Agriculture Seek Recovery of World Markets, or Arrange to Live at Home?

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WATER AND NATIONAL BOOKKEEPING

A radio talk by Thorndike Saville, Associate Dean, College of Engineering, New York University, member Water Resources Committee, broadcast Friday, December 13, 1935, in the conservation day program, National Farm and Home Hour.

--ooOoo--

Perhaps from the title of this address: "Water and National Bookkeeping" you will conclude that I am about to discuss watered stock, or an inflated currency, or some related financial subject of a controversial nature. Not at all. I am going to try to describe to you a kind of bookkeeping for our national water resources about which most of you have never thought, but upon the accurate keeping of which depends our freedom from water insolvency.

Every high school student has been taught the necessity of two fundamental procedures for the successful prosecution of any business. The first is an occasional inventory of stock. The second is the keeping of a ledger in which are entered the daily transactions, both credits and debits. You ask, what has this got to do with water resources? Well, there are almost no activities of an agricultural, manufacturing, or recreational nature which are not to a great extent dependent upon the use and control of water. Enormous sums of money are invested in these enterprises, from the smallest farm with its spring or brook, its dependence upon rainfall or irrigation, to the great city having to go a hundred miles or more for a great water supply of adequate quantity, containing no chemical ingredients deleterious to manufacturing processes, and of reasonable purity to a safeguard health.

Almost every activity of present and past civilization is more dependent upon water than upon any other natural resource. Earlier civilizations have reached a climax, waned, and disappeared because of unscientific use and abuse of water and land resources, and from lack of knowledge of the inter-relations between the two. We have no excuse to let our future in this country be so circumscribed, limited or curtailed by lack of knowledge of what to do to conserve the great resources of land and water with which we have been blessed. Our knowledge of what to do is adequate, our will to perform has thus far been lacking. If we continue to dissipate prodigally in the future as in the past, we shall quite soon be faced with water insolvency in our natural resources bookkeeping. Indeed in some areas we are already virtually insolvent, and some of our lands are in the hands of what are really natural resources receivers, who are trying to see what can be salvaged from or what can be restroed to vast regions of eroded and eroding lands and water deficient or water damaged areas.

I mentioned that any business man makes occasional inventory of his stock. The first, though necessarily hasty inventory of our national water resources was published in the report of the National Resources Board issued in January 1935. It was found that in the first place we were surprisingly lacking in certain basic data needed to really evaluate the extent

(over)

and character of our water resources in many areas, and that in the second place we had so dissipated or unwisely used these water resources as to produce highly uneconomic results, or actual damage capable of being expressed in dollars loss.

Time does not permit me to describe these in detail, but as examples of the first I may point out that we have never collected on any adequate scale information as to the amount, the character, and the extent of our ground water resources, upon which about half of our population are dependent for domestic, agricultural and industrial uses. We have little information as to the chemical quality of our surface and ground waters, notwithstanding that such information is needed for the wise expenditure of millions of dollars in the development of agricultural lands, location of industries requiring water of special characteristics, and the public health.

As examples of waste and damage, I may cite first the terrific soil losses, so vividly protrayed in the recent reports of the Mississippi Valley Committee and of the Soil Conservation Service. Literally millions of dollars worth of fertile top soil are removed annually from our best agricultural lands, by the uncontrolled action of water and the improper use or cultivation of land. I may cite as another example, the fact that during a recent five year period, unfavorable chemical elements in the water of the Delaware River caused a loss of over seven million dollars to industry, a loss preventable by adequate water resources control. I may mention the large, though perhaps intangible loss in fish life, recreational possibilities, and industrial uses due to the pollution of certain of our inland and coastal waters. Finally, a loss not apparent to many of you, is constantly occurring by erosion of our coasts by wave attack, destroying literally millions of dollars of property every few years.

Our inventory shows these facts of ignorance about our water resources, and of demonstrable loss due partly to this ignorance and partly to our delay in utilizing effectively the knowledge which we have.

What to do about this? Why, of course, any sensible man will reply, having made our inventory we must install an improved system of bookkeeping which will give us the day by day statements of our water conditions. What constitutes a national water resources system of bookkeeping? It amounts to about this: day by day records of rainfall, snowfall, stream flow, evaporation, ground water, chemical quality of water, coastal and land erosion at sufficient stations distributed over the United States to enable us to accurately determine such factors as: the average annual amounts, the annual and seasonal variations, the extremes during drought and flood and storm, and the relationship of each to the others. This sort of bookkeeping we have, but the sytem is as yet quite inadequate for striking any balance to give us a true picture of the actual status of this vital factor in national economy. Our present system is something like that of the accountant who forgets to enter a large expenditure, or who enters a series of sales in the wrong place, or who tries to estimate the sales of butter from records of the sale of shoes. He cannot make an accurate inventory of his stock, nor can he forecast the growth or decline of his business, nor can he plan for more efficient management to reduce his losses or increase his surplus.

The remedy for the present inadequate and somewhat uncoordinated national water resources bookkeeping system is twofold: first many more continuous records of basic water resources data, and second the utilization of such data in evaluating the respective possible uses of our waters and planning adequately for their conservation and development.

The first may only be obtained by providing for a well considered expansion in the activities of the ordinary established data collecting agencies of the federal and state governments, such as the Weather Bureau, the Geological Survey, the Coast and Geodetic Survey, the Army Engineers, the State Conservation Commissions, etc. Such expenditures will bring forth fruits multiplied a million fold. These are not spectacular activities. Like any accounting procedures, they are day by day records of factors in themselves prosaic, but which are absolutely requisite not only for the intelligent use, but indeed for the very preservation of our civilization.

If we have an accurate and comprehensive bookkeeping of our water resources debits and credits, and therefrom may from time to time make inventory of the existing state of affairs and the trends, we can then begin to plan intelligently. We can coordinate the water development activities of various federal and state bureaus, we can evaluate the respective possible uses of water in a given region; we may even reconcile conflicting state interests in comprehensive drainage basin developments.

The Water Resources Committee of the National Resources Committee, following the example of its predecessors whom I have mentioned, has envisioned a citizenship made water conscious. It is in a very modest way trying to stimulate a realization of the need for better national water bookkeeping, more coordination and less waste in all kinds of water undertakings, and a general realization upon the part of every one of you that an increased effort in the matter of day by day accounting of our water resources and their evaluation and planning is essential if we are to avoid a water insolvency, and to gain a more effective use of our water and land resources to the end that we may all of us have and may enjoy those large benefits possible from the efficient conservation and use of these resources in the interest of the national economy, health and welfare.

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THE NEW INDIAN CONSERVATION POLICY

A radio talk by John Collier, Commissioner, Indian Affairs, delivered in the Conservation Day program, National Farm and Home Hour, Friday, December 13, 1935, broadcast by 60 stations associated with the National Broadcasting Company.

I am going to report on the part of our American Indians in the present struggle and in the hoped-for future of our country. We believe that the Red Indians have a long and an exciting future.

Beginning forty-five years ago, and continuing until the present Administration took office, the Federal Government, through forced land allotment and other means of compulsion, cut down the Indian land-holdings at an average rate of two million acres a year. Ninety million acres of Indian lands were transferred to whites between 1887 and 1932. Forty-seven million acres remained in Indian ownership. Half of this remaining land was desert or semi-desert land.

During those same years, while the Indian was being forced to surrender his land, agricultural credit was denied to him; and he was, practically speaking, forbidden to organize for any of the necessities of agricultural or rural industry or life. As a result, many million acres of the diminished Indian land-holdings had to be leased to whites who had capital and who were free and able to organize for the use of the land.

And during these same years, the diminished Indian land-holdings were cumulatively wasted through the effects of over-grazing. Soil erosion and wind erosion, in the last twenty years alone, have transferred millions of acres of Indian land into waste land.

When this Administration took office, we found more than 100,000 Indians totally landless; and more than half of the residual Indian farm lands were being leased to whites, and the vast bulk of the Indian grazing lands outside Arizona and New Mexico were leased to whites. Indian poverty was deeper and more universal than any other poverty in the United States and it was growing more intense with each year. The Indian race appeared to be doomed.

In plain truth, the government's laws and policies had been designed to disinherit the Indian and to exterminate him. This implicit and sometimes explicit policy of the sovereign government had become registered in the Indian mind and it had resulted in fatalism and bitterness among many tribes.

What, in brief, are we now trying to do?

We have checked the transfer of Indian lands to whites. No Indian land hereafter may be allotted.

We have established a system of agricultural credit for Indians.

(over)

We have enacted broad legislation, authorizing and helping the Indians to organize for modern rural industry. They may organize as tribes or as local communities.

We have embarked upon a complete remaking of the Indian educational system, pointing it toward rural life and specifically toward scientific land use and the revival and perpetuation of Indian crafts.

We have commenced to restore to the Indians some of the land wrongfully and ruinously taken from them. This restoration of land is being accomplished through purchase with government funds.

But of greatest importance, we have gone to work, and the Indians with us, in an attempt to vest the Indians with the use of their own land, and to accomplish that use in such a manner that the land will be built up instead of destroyed.

I give you a single example of the program and of the Indian way of meeting it. Last week in New Mixico, I conferred with the Laguna Pueblo tribe. The Soil Conservation Service of the Department of Agriculture had ascertained the facts as to the condition of the land of these Indians, and these technical men, with the help of our Indian Superintendent, a woman, had slowly and honestly canvassed the situation with the Indians.

The Laguna tribe, of its own free will, last week undertook to reduce its livestock 73 percent, across a four-year period beginning immediately. And they have already delivered several thousand head of their surplus stock.

On its side, the government undertook to re-seed the damaged range, to put irrigation water on certain tracts of land, to apply the technics of flood-water farming wherever the land contour permitted, and otherwise to build up the frightfully injured lands.

The Lagunas themselves, an organized body of men and women, will do the various and many-sided technical work of soil conservation and land redemption.

I am told that no group of white sheepmen or stockmen ever voluntarily reduced their stock in any such drastic fashion as the Lagunas have now undertaken to do. The Lagunas were merely one of numerous tribes embarked upon a similar program.

The Indians today need the understanding and help of every one of you whom my voice may be reaching. Indian Affairs are wholly within the control of Congress. The new policies, which are a repeal of the sentence of death against Indians and a grant of a new and a long life to the Red race, were not established without a struggle. And they cannot be maintained without an even greater struggle. Numerous, powerful, and organized are the white interests which do not want the Indian lands saved to the Indians, which do not want the Indians to run their own stock on their own land, which do not want the Indian trust funds protected.

I ask you to remember that the Indian, after ten thousand years of exclusive occupancy of this continent, delivered the forest, range, soil and

wild life to the white man undamaged, intact and abundant.

The Indians were conservationists. They were conscious and systematic conservationists. And they brought to the land and its resources--plant resources and animal resources--actually a religious care and reverence. If the new policies can go forward, through being understood and supported by enough American citizens, the Indian will become once more, but in modern and prophetic terms, that which he was for so many thousand years. And that is, a member of a cooperative commonwealth, responsible and faithful toward the Earth and its plants and creatures, guardian of the natural resources, and not, as so many of our white race have become, the enemy of Nature, of the wilderness and the soil, the wild creatures, the pure waters and the land.

The Indian has never been permitted to make his great contribution to the United States. We are now trying to give him that chance. His contribution will be made in the field of intelligent land planning and land use, of cooperative enterprises, and of human and natural conservation.

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HEATING WITH OIL

A radio interview between M. S. Eisenhower, Director of Information, and Morse Salisbury, Chief of Radio Service, in the Department of Agriculture period of the National Farm and Home Hour, Monday, December 16, 1935.

--ooOOoo--

SALISBURY:

Each year, several thousand persons - both farm and city - ask the Department of Agriculture for information about heating the home. To answer such questions, the Bureau of Agricultural Engineering, with the cooperation of the Bureau of Home Economics, has studied warm air furnaces, the general heating plant, and other heating problems - especially the heating problem of the farm family.

About 12 years ago, folks began to get interested in burning oil to heat houses. Faced with a growing number of inquiries about oil-burning heating equipment, the Bureau of Agricultural Engineering began a small study of domestic oil burners. But interest increased. At present, the Department gets well over 4,000 inquiries a year about oil burners alone. Hence, the work on oil heating has developed into an important part of the Bureau's hearing investigations.

Today, Milton S. Eisenhower, Director of Information for the Department, will sketch briefly what the Department investigators learned about oil heating and oil-heating equipment.

All right, Milton - -

EISENHOWER:

Thanks, Morse, -- and hello, everyone.

SALISBURY:

Now, Milton, I guess the big question in most folks' minds is, How does the cost of oil heat compare with the cost of coal heat?

EISENHOWER:

That's a little difficult to answer, Morse.

SALISBURY:

It's a fairly simple question.

EISENHOWER:

Yes, but I can answer it either way. Under certain conditions oil costs less; under others, coal.

SALISBURY:

So the answer is yes and no.

EISENHOWER:

Yes - - I mean, that's right.

(over)

SALISBURY:
Well, what are these conditions that cause all the variation?

EISENHOWER:
Well, let's get at it this way. A heating system should meet the requirements of the individual and of his particular house.

Some people want to heat at the least possible cost, including the initial outlay. Others - while interested in cost - insist upon maximum cleanliness. Others do not want a noisy plant. Still others want a plant that will require a minimum of attention.

SALISBURY:
(That's me.)

EISENHOWER:
The problem of heating a small house, with small rooms, is considerably different from that of heating a large house, with large rooms and many openings. Weather-stripping makes a great difference.

Then, too, some people may face the problem of modernizing an old heating plant, while others may be starting from scratch.

SALISBURY:
Were you thinking of all those things when you avoided answering my question about the relative cost of heating with coal and oil?

EISENHOWER:
Yes, all those, and more too. Prices vary. You may carefully figure, after considering the specific problem of heating your own home, that coal has a slight advantage. Then price relationships change. But you can't be changing your heating equipment all the time.

SALISBURY:
I'm just about to become discouraged. It looks to me as if your answer is going to continue to be yes and no.

EISENHOWER:
Not quite that bad, Morse. But I do think it's time to call in a professional consultant.

SALISBURY:
So do I. . . . You have the advantage of me, there, because I know that you've been talking to Arthur Senner of the Bureau of Agricultural Engineering.

EISENHOWER:
And that is a real advantage. Senner has gone systematically about his work. He has carefully tested different types of coal-burning boilers, and then those same boilers equipped with oil-burners. He has tested boilers built especially for oil-burners, and the newer boiler-burner units. Also he has made careful tests of stoves and cooking equipment, and bottled gases for rural sections, and so on.

SALISBURY:
All right, now, Milton. What does Arthur Senner say about the cost of heating with coal and - -

EISENHOWER:
Just a minute, Morse. I'd like to get one more general observation off my chest before I give in to your persistence. Senner mentioned a thing to me that is extremely interesting, and yet very simple.

Efficiency in a heating plant depends upon getting the highest possible percentage of the heat, which is provided by the burning fuel, to the rooms of the house. Amazing progress has been made in recent years in doing this more efficiently. Some of the newer heating equipment is as high as 85 percent efficient - that is, only about 15 percent of the heat is lost up the chimney or in other ways.

SALISBURY:
Glad to learn that. But just what does Arthur Senner say about---

EISENHOWER:
--The relative cost of coal heat and oil heat!

SALISBURY:
That's right. Now....

EISENHOWER:
All right, let's answer it, Morse. But not too abruptly. First, let's understand how Senner went about his studies.

He compared the amount of coal needed to fire small round boilers such as you might find in a home of 6 to 10 rooms, with the amount of oil needed to fire the same type of boiler in the same weather.

SALISBURY:
And so here we are at last. What did he find out?

EISENHOWER:
From tests on many of those round boilers, he found that a short ton of coal gave as much heating effect as from 150 to 200 gallons of oil.

SALISBURY:
One hundred fifty to 200 gallons seems quite a wide range.

EISENHOWER:
That's because of the tremendous difference in individual boilers of the same general type - and the difference in temperature controls.

SALISBURY:
All right. A short ton of coal equals 150 to 200 gallons of oil.

EISENHOWER:
Correct!

SALISBURY:
But now - that gives you only the cost of the fuel. You also have to take into account the cost of the oil system itself.

EISENHOWER:
Yes. The oil system may cost you several hundred dollars.

SALISBURY:
Well, now - and here's where most people really need help - what's the best kind of burner?

EISENHOWER:
I asked Senner the same question. Senner says you might as well ask, "What's the best make of automobile?"

SALISBURY:
Well, more specifically, does Senner recommend the gun burner, or the vertical rotary, or pot type, or just what?

EISENHOWER:
In general, one type of burner is about as good and another - IF you have a special oil-burning boiler or a complete boiler-burner.

SALISBURY:
So, efficiency of the oil burner seems to hinge mainly on the kind of boiler.

EISENHOWER:
Everything considered, yes.

SALISBURY:
Well, can you give me any general points at all to guide me in chossing between various burners?

EISENHOWER:
Senner says the most important point is to go to a reliable dealer. Even the best burner won't be satisfactory unless it's installed right, and given good service.

SALISBURY:
That seems good sense.

EISENHOWER:
Beyond that, consider the kind of fuel you can get in your community - and the kind of fuel the burner will burn. Also, how much noise it makes - how much cleaning and attention it needs. If you're apt to have to change back to coal, get a burner you can pull out readily and replace with the coal grates.

SALISBURY:
Well, now you say the boiler's important--

EISENHOWER:
--Right at the outset, let me remind you again most folks put the oil burner in a fire box designed for coal.

SALISBURY:
I suppose coal fire boxes aren't so good for oil.

EISENHOWER:
A large percentage of them aren't.

SALISBURY:
Can't you change the boiler -- or something?

EISENHOWER:
No, not very satisfactorily. But Senner says you can change the heating surface of the boiler so it will consume less oil.

SALISBURY:
Just how?

EISENHOWER:
For one thing, if you have a boiler made up of several sections, you can add more sections.

SALISBURY:
And get more heating surface.

EISENHOWER:
Correct.

By adding more sections, Senner found he could save as much as 25 percent on fuel.

Then, you can put in baffles to throw the heat more directly to the boiler.

SALISBURY:
Well, that's all interesting to the man who's going to put an oil burner in his coal furnace. But somebody who's building a new house, may start with a boiler designed especially for oil.

Now, first of all, which is the better boiler -- the steel or the cast iron?

EISENHOWER:
From the tests so far, Senner hasn't found much difference due to the materials themselves. But, of course, a steel or cast-iron boiler may have different designs.

SALISBURY:
And so different efficiency.

EISENHOWER:
Exactly.

SALISBURY:
Well, now, another question: Does a special oil-burner boiler actually save much over the coal boiler?

EISENHOWER:
Not so much if your coal boiler is adjusted just right when you switch to oil. But making that adjustment just right is a hard job.

SALISBURY:
So, from a practical standpoint, the special boiler for oil burners might be more efficient.

EISENHOWER:
That's right.

SALISBURY:
Well, what about these so-called boiler-burner units? - where the burner is built right into the boiler? How do they work?

EISENHOWER:
The boiler-burner units Senner has tried worked very efficiently. He says they saved 15 to 40 percent on fuel over the general run of coal boiler -- but probably not much over the better coal units or the special oil burner and boiler.

SALISBURY:
But those boiler-burner units appeal to me because they usually have a year-round hook-up to provide hot water.

EISENHOWER:
Yes. The year-round supply of hot water for your home appeals to me, too. Of course, the hot water heater works right on automatically after the heating system cuts off.

SALISBURY:
Well, now, another important question: What kind of oil should you use?

EISENHOWER:
The cheapest oil which the Fire Underwriters' Laboratories recommend for the particular kind of burner you have.

SALISBURY:
In general, do the oil-burning systems offer much of a fire hazard?

EISENHOWER:
Not if you follow the rules of the National Board of Fire Underwriters and of the local electrical code.

SALISBURY:
How can you get those rules?

EISENHOWER:
Write to the Underwriters' Laboratories, Chicago, Illinois.

SALISBURY:
Well, these facts have been very helpful. But, if our listeners are like me, they probably will want to refresh their memories on a lot of points -- and dig deeper into others.

EISENHOWER:
Well, simply write to the Bureau of Agricultural Engineering, United States Department of Agriculture, Washington, D. C.

SALISBURY:
So, for facts about oil-heating systems for the farm home - and, of course, also the city home - write to the United States Department of Agriculture, Washington, D.C. For suggestions on how to avoid fire dangers with oil systems, write to the Underwriters' Laboratories, Chicago, Illinois.

EISENHOWER:
That's right.

SALISBURY:
Well, thanks very much, Milton.

Another time, I hope you can tell us about some other phases of the Department's heating investigations - for example, the work on bottled gases for rural sections - and on stoves and cooking equipment - and on solid fuels - and so on.

I understand that the coal people also have developed recently, automatic coal-burning furnaces which operate with little dirt. We'll be especially interested to hear about those automatic coal furnaces -- after the Department engineers have had a chance to make investigations similar to their investigations on other types of heating equipment.

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WHAT HOME MAKING EDUCATION IS DOING FOR THE NEGRO FAMILY

A radio talk by Mrs. M.E.V. Hunter, Head, Dept. Home Economics, Virginia State College, Ettrick, Virginia, delivered in the December 18, 1935, Land-Grant College Radio Hour and broadcast by a network of 49 associate NBC radio stations.

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Home economics education in its process of development is making a distinct contribution to individuals who are engaged in home making. Urban and rural families in all sections of America receive this information. The Negro family who live on the farm are sharing innumerable points of information which are offered by the United States Department of Extension Service and the Division of Home Economics in the Land Grant College. Negro women and girls who enroll for instruction in home making derive a great benefit through individual adaptation of the program which includes the following:

Food production and preservation, foods and nutrition, home improvement, interior and exterior beautification, house furnishings, clothing selection and construction, budgeting, community activities, child care, recreation, and the social and cultural development of the family.

Increased food production and preservation is one of the first practices in economic improvement. The use of the individual or community canner plays an important part in the program of home making education; first, it increases the family income by providing a well filled pantry with canned products; second, it enables one to develop the spirit of cooperation; third, it affords an opportunity for individual and community contact. Negro farm families of Texas own some three hundred community canners of various sizes; and it is estimated that they canned 128,000 containers of food products for home use during the year 1935. Housewives in practically all of the Southern States can meats, vegetables, and fruits in large quantities.

Increased interest in meal planning and preparation is manifested by families who participate in the food preservation program. Approximately 90% of the instructed group enjoy palatable meals.

Budgeting time and money increases the family interest in home making education and enables them to plan appropriately for leisure time.

In order to modernize home making the farm family has made or purchased a large number of convenient labor saving devices. Trees, shrubs and flowers are collected, assorted and transplanted so as to contribute to the beauty of the exterior of the home.

The Negro home demonstration agent of Louisa County, Virginia worked with 111 farm families in home improvement and obtained the following significant results: Sixteen families repaired and refinished bedroom furniture, and 95 families improved walls and floors of various rooms and

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installed kitchen sinks and other equipment.

Clothing construction and selection is an important part of the present program. Remodeling garments and using available material in garment construction increases the comfort of the farm family and aids greatly in health preservation.

The Division of Home Economics at Virginia State College supplied all Negro schools in Chesterfield County, Virginia with patterns of gymn suits during the spring of 1935. The county schools made a total number of 261 suits which enabled boys and girls to be correctly and inexpensively dressed for play day.

A continuation of the instruction in home making enables the house wife to organize and execute home duties. It also makes possible a well appointed, inexpensive home in which the family may develop from a physical, social and cultural point of view.

In making a study of the effects of home making education upon the home life of 2,332 Negro families for a period of five years, it was found that they increased the annual income from $670.80 to $964.39. Ninety-seven percent of these families made some improvement in their housing conditions; 91% made quilts, curtains, and rugs for the home. The homemaker seems to enjoy the process of unlearning lessons of a life time in order to fit into the readjustment program of the present.

The utilization of all available products has a new value in home making of today; and a realization of a more inviting farm life is in the process of development.

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HOW NEGRO FARMERS ARE DEMONSTRATING THE LIVE AT HOME PROGRAM

A radio talk by Thos. B. Patterson, District Agent, State College, Ettrick, Virginia, delivered in the Land-Grant College radio program, December 18, 1935, and broadcast by a network of 49 associate NBC radio stations.

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The live-at-home program is still the dominant factor in Virginia's Extension Work among Negroes.

First, because it is the fundamental principle underlying all successful activities on the farm.

Second, because there are still too many farmers who have not reached the point where they can grasp this most important fact. Many still feel that they can raise the so-called money crops and purchase what food and feed they need for their families and livestock from the proceeds. In order to stimulate a greater production of home grown supplies the local agents programs of work continue to carry demonstrations in home gardens, the home dairy cow, poultry, swine production, the home orchard and feedstuffs for the livestock.

The formation of canning clubs and centers goes a long way towards helping farmers to supply their home needs, also.

Extension methods used in getting the program over to Negro farmers are community clubs, county and state advisory boards, farmers' conferences, extension schools, tours and local leaders.

Negro farmers are living at home by improving their soils, since no improvement practices can be maintained on poor land.

Soil erosion is the greatest foe to Virginia farms. In view of this negro farm agents are taught how to terrace lands. The calls are so great for this service that it is demanding much of their time. Last year 874 acres in ten counties were terraced to prevent soil erosion.

Successful Negro farmers following extension methods are improving their lands by growing green manure crops. In Sussex County, Virginia, the local agent induced his advisory board to purchase rye and lespedeza seed to furnish farmers in eighteen communities enough seed to seed one acre each. The farmer returns two pounds of seed for one which are redistributed to other farmers. In the course of time every farmer in the county following extension methods will have sufficient seed to sow for soil improvement. This year seventy-two acres were seeded to rye in that county for soil improvement. As a result of this soil improvement campaign, William Shands raised fifty-four bushels of corn on his acre seeded to rye.

Every Negro farmer in Virginia who follows extension methods is carrying a year-round garden. Mrs. Nannie Thompkins of Amelia County, Virginia is the garden leader in her community. After feeding her family of eleven for the year from the garden, she canned 1437 quarts of vegetables and stored root

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crops and dried fruits and vegetables to the value of $104.00. Her work resulted in fifteen families in her community canning 4,500 quarts of fruits and vegetables, for the home.

To further aid Negro farmers in living at home canning clubs and centers are organized. In Greensville County, Virginia Negro farmers have established two canning centers. In addition to canning two beeves co-operatively, 250 families have put up an average of 115 quarts each of vegetables for home use.

Negro farmers of Virginia are demonstrating the value of feed for livestock in the live-at-home program. In Surry County, Virginia, they are producing enough corn and hay to supply the county needs. In Albemarle County eleven Negro farmers produced an average of two tons of hay per acre by following extension methods. As a result, thirty-five other farmers in the county were induced to grow more hay for home supply.

A majority of the Negro farmers who are following extension methods are carrying sufficient cows, hogs and chickens for their home needs.

One Negro farmer in each of the twelve communities in Nansemond County is carrying one demonstration in cows, hogs, and chickens as an example for farmers in his community.

Through extension methods Negro farmers in Virginia are steadily learning the value of the live-at-home program, and in addition, are beginning to translate their success on the farm into higher standards of living.

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MY EXPERIENCE IN SAFE FARMING AND IMPROVING THE SOIL

A radio talk by William H. Harris, farmer, Route 2, Beach, Virginia, delivered in the Land-Grant College Radio Hour, December 18, 1935, and broadcast by a network of 49 associate NBC radio stations.

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It has been my experience that it is possible to make a living from the soil by following safe methods of farming. Ten years ago I did public work, had a family of five to support, with part-time farming, on 12 1/4 acres of land that I owned with six acres in cultivation. My soil and living conditions were poor with a four-room house unpainted, no toilet or well, with my wife bringing water three hundred yards.

My first experience in safe farming methods was with poultry. I started with a mixed breed of Barred Rocks and used purebred Barred Rock Cockerels from Hampton Institute at the suggestion of my county agent to improve the breed. I remodeled a poultry house that I had built of slabs, with open front, movable roosts and nests. I fed my hens dry mash in hoppers, a mixed grain consisting of cracked corn and wheat. I kept a record of production and expenses and culled unprofitable producers each year.

I kept up my poultry breeding until my flock was certified by the state of Virginia and I sold eggs to nearby hatcheries for t en to twelve cents per dozen about the market price, in addition to those used to supply my family. When my poultry flock began to pay a profit I quit public work and devoted all my time to the farm. Since I have devoted all my time to the farm I have bought 20 1/2 additional acres of land; added four rooms to my dwelling which has been painted; built two new poultry houses, 20 x 30 and 20 x 40; dug a well, built sanitary toilet, and beautified my yard with seeded lawn, walks and shrubs. I now have a flock of 425 hens and 26 males consisting of 350 Leghorns and 75 Rocks.

While I was building up my poultry flock with better blood I have improved my soil with poultry droppings and green manure consisting of Crimson clover, cowpeas and rye. Ten years ago my soil produced an average of fifteen to twenty bushels of corn per acre. Last year I produced sixty bushels of Golden Dent Yellow corn per acre on a six acre field by improving the soil and the use of good seed. My corn is used to feed the poultry flock, which I have found to be another method of safe farming and I only have laying and growing mashes to buy as a result.

I have maintained a year-round garden which has supplied my family with fresh vegetables; two cows that have supplied the milk and enough hogs to furnish the meat without having any to buy.

For the past seven years I have been able to live at home with a family of eleven, and put a part of my farm income into higher standards of living by following suggestions of the Extension Service. It has been my experience that it can be done with hard work; well managed poultry flock; a year-round garden, a cow, sow, and a fertile soil.

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WHAT THE LAND GRANT COLLEGES ARE AND WHAT THEY ARE DOING

A radio talk by John M. Gandy, President, Virginia State College for Negroes, Petersburg, Virginia, delivered in the Land-Grant College radio hour, December 18, 1935, and broadcast by a network of 48 associate NBC radio stations.

I have been asked to answer within a period of five minutes two very important questions -- namely: What are the Negro Land Grant Colleges and What are They Doing? By way of brief answer to the first question -- the term Negro Land Grant Colleges embraces the seventeen colleges provided in as many states exclusively for the education of Negro youth and supported through federal funds and state appropriations. In organization, the Negro Land Grant Colleges consist of the divisions or colleges of education -- known as the teachers college -- agriculture, home economics, mechanic arts, and liberal arts, and can be expanded into a university if and when adequate funds are available. All the divisions of these colleges are vocational in objectives and purposes.

Now for the second question -- What are the Land Grant Colleges Doing? In the first place, they are making a strong and successful appeal to the Negro youth to enter college. Over a period of a comparatively few years these institutions have had a tremendous growth in the enrollment of students. In 1914 there were only twelve students enrolled in the collegiate divisions of all of these colleges; but in 1935, a period of just twenty-one years, the college enrollment in round numbers increased to 7,000 students. Stated another way, these institutions represent fifteen percent of the entire number of Negro schools offering collegiate courses, but they enrolled for 1934-1935 thirty percent of the entire Negro college population. In the short space of twenty-one years the increase in student enrollment has reached 582.33 percent and every year brings an enrollment greater than the previous year.

Also, the Negro Land Grant Colleges are meeting the vocational needs of the Negro population of the country. Particularly valuable is their contribution in supplying well-prepared teachers of academic and vocational subjects for the public school system. Throughout their history they have been sensitive to the changing standards set up for the certification of teachers and their curricula have been adjusted to meet these shifting standards. So effective has been the work of one of these schools that from its graduates it has supplied at least 50 percent of the entire Negro teaching force of the state in which it is located. A similar testimony can be given for the other sixteen colleges of this class. They have been the one source the State could rely upon for the preparation of public school teachers -- through residence study and a far reaching extension service.

Similarly, and perhaps especially, is the agricultural life of the Negro people vitalized and developed by the off-campus activities of the Land Grant College. Youth and adult share the program. By means of the Smith-Hughes Act vocational courses are organized and promoted. From the projects carried on in this connection accrue commercial returns mounting

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into thousands of dollars. While their financial significance is not to be under estimated, the chief value of these projects is in their development of the boy's interest in farm life as a vocational choice. Under the Smith-Lever Act are made available farm and home demonstration agents who work with farmers and their wives. The amount of good done by these services cannot be estimated in dollars and cents. Thousands of rural people have had their vision of better and more wholesome living enlarged and higher ideals of life instilled.

As a third realized objective, the Negro Land Grant Colleges are setting high educational standards. The Association of Negro Land Grant Colleges at its annual conference, which is attended by educational experts, discusses problems and unfolds methods and techniques in keeping up with new trends and emphases in education. It is not surprising, then, that in several states, the Land Grant Colleges are now rendering incalculable service in helping teachers to understand and apply the principles underlying a revised curriculum. Another concrete means by which these colleges attempt to determine progressive education policies is through their five-year program of research activities.

A fourth and by no means the least important thing the Land Grant Colleges are doing is that of serving as social centers in their respective communities -- centers for the basketball and tennis tournaments, track meets, debating and oratorical contests, music festivals, farmers conferences; centers for county school play days, Hi-Y conferences; centers for the development of interracial understanding and good will. Common interests, common thinking, and common agreement between the two races result in the cultivation of a heightened respect of one group for the other, a broader and deeper sympathy of the strong for the weak, and a more deep-seated interest in the fuller growth and development of each race. As a social agency, then, the Negro Land Grant College holds the key to interracial good will in the South.

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INSECT-PROOF CROPS

A radio interview between M. S. Eisenhower, director of Information, and Morse Salisbury, chief of Radio Service, delivered in the Department of Agriculture period of the National Farm and Home Hour Monday, December 23, 1935, and broadcast by NBC and a network of 50 associated radio stations.

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SALISBURY:

From time to time we've reported to you listeners on ways to fight insect pests. But, for some of the destructive insect pests, the scientists haven't yet found effective, economical methods of control. To control other pests, they are looking for cheaper and more effective methods.

The scientists have bred varieties of crops more or less immune to certain diseases. For instance, wheat which stands up against various kinds of rust, or oats or sorghums which resist the smut, or tomatoes which are able to ward off blight.

The scientists are now trying the same tactics against insects: trying to develop insect-proof crops. Today, our Director of Information -- Mr. M. S. Eisenhower -- will tell you what headway they're making. All right, Milton --

EISENHOWER:

Thanks, Morse -- and hello, everyone.

SALISBURY:

Milton, this new idea of insect-proof crops -- Well, -- the idea rather puzzles and intrigues me.

EISENHOWER:

It's an interesting idea -- but not a new one. Farmers have known about it for a hundred years or more. To understand the modern application of the idea I suggest we start with the work on breeding a variety of wheat that will resist the Hessian fly. Dr. S. C. Salmon of the Department's wheat section told me the history of that effort.

SALISBURY:

Fine. Let's have it.

EISENHOWER:

In an early issue of the American Farmer -- an issue way back in 1819 -- Salmon ran across a story of a variety of wheat which stood up better than other varieties against attacks of the Hessian Fly.

SALISBURY:

Just where was that?

EISENHOWER:

In New York.

SALISBURY:

What was the variety?

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EISENHOWER:
Lawler.

SALISBURY:
Don't know it.

EISENHOWER:
It was one of the varieties of that day. Well, over the next hundred years, various scientists and farmers tried out supposedly fly-proof wheat.

SALISBURY:
Without success, I take it.

EISENHOWER:
Well, one man would find a particular variety resistant to the Hessian fly, but another man wouldn't.

SALISBURY:
So, one or the other was wrong.

EISENHOWER:
Not necessarily.

SALISBURY:
Explain yourself.

EISENHOWER:
I will as I go along.

In 1918, Salmon and another scientist, J. W. McColloch -- both of them on the staff of the Kansas Agricultural Experiment Station -- started to investigate this supposed fly-resistance in wheat.

SALISBURY:
I suppose, to prove or disprove those early theories.

EISENHOWER:
Yes -- and to try to explain what they observed in their own "back yard", so to speak.

SALISBURY:
What was that?

EISENHOWER:
Well, they also noticed that the Hessian fly damaged some varieties of wheat less than others. They wanted to find out why.

SALISBURY:
Maybe, the flies prefer to feed and lay their eggs on a particular variety.

EISENHOWER:
Within certain limits, that may be true. But, for the most part, the flies lay about as many eggs on one variety as on another.

SALISBURY:
Maybe the fly-proof variety is just generally hardier.

EISENHOWER:
Apparently not.

SALISBURY:
Maybe the strain is harder or tougher.

EISENHOWER:
Well, I happen to have here two wheat straws -- one's from a fly-proof variety; the other isn't. Take a look at these. See if you can tell any difference?

(SLIGHT PAUSE)

SALISBURY:
No -- I can't. But that proves nothing, one way or the other.

EISENHOWER:
Well, anyway, one straw's as hard as another -- and apparently they're about alike in every other way.

SALISBURY:
Well ------ Well, maybe this resistant variety has something in it poisonous or objectionable to the fly.

EISENHOWER:
Maybe. But the scientists don't know.

SALISBURY:
Well, everything seems to point in that direction, doesn't it?

EISENHOWER:
These are the facts.

Of course, you know something about the fly's life cycle?

SALISBURY:
It seems to me the fly lays eggs on the wheat -- the eggs hatch into the larvae which turn into pupae -- and the pupae change into the adult fly -- and --

EISENHOWER:
And the cycle's finished.

Now, when the eggs hatch out, the larvae crawl down -- let's have those straws again.

The larvae crawl right down in here where the leaf joins the stem. To that point they're all right. But shortly after they begin to feed, the larvae on these resistant plants die.

SALISBURY:
Poisoning.

EISENHOWER:
The scientists haven't been able to find out definitely. But the evidence does seem to point to something of that kind.

SALISBURY:
Well, now, I imagine our listeners are curious to know just which varieties of wheat are immune to the fly.

EISENHOWER:
I've been expecting that question -- but I can't answer it.

SALISBURY:
You mean you don't know?

EISENHOWER:
As often happens, most of the more resistant wheats are the less important non-commercial varieties. Salmon tells me the wheat men aren't ready to certify the fly resistance of any of the commercial wheats.

SALISBURY:
Which means they won't mention variety names lest some seed dealers use that as a chance to exploit the varieties mentioned.

EISENHOWER:
Right.

SALISBURY:
Well, now I suppose the wheat inherits the quality to stand up against the Hessian fly.

EISENHOWER:
Yes. Salmon tells me the scientists have found that wheat inherits that quality according to established principles of genetics.

SALISBURY:
Inherits it independently of other characteristics?

EISENHOWER:
It does.

SALISBURY:
Then, knowing those facts, the scientists can breed the fly-proof quality from the less desirable into the desirable wheat varieties.

EISENHOWER:
Exactly.

For example, the Federal and State breeders and entomologists are trying to breed a fly-resistant club wheat for the Montezuma Hills district of Solano County, California.

SALISBURY:
As I recall, the club wheats are pretty popular in that section.

EISENHOWER:
Yes, because the club wheats shatter less from the high winds.

SALISBURY:
So if the scientists can add a fly-proof quality to the shatter-proof quality, the Montezuma Hills wheat farmers will be pretty well fixed.

EISENHOWER:
At least that's what the scientists hope.

Salmon tells me the Federal and State scientists also are working on a general long-time program to get at further facts about fly-resistance -- and --

SALISBURY:
And to breed resistant varieties for the various sections of the country.

EISENHOWER:
Yes, but the story has much more to it than that.

Several months ago, you remember we reported how E. C. Cushing of the Bureau of Entomology and Plant Quarantine, discovered that second strain of screw-worm fly in the South.

SALISBURY:
Yes. I remember that story quite well.

Of course, after Cushing discovered the second screw-worm -- with its different sets of habits -- the screw-worm campaigners had to revamp their plan of attack.

EISENHOWER:
Quite right.

Now, Painter, a Kansas entomologist, discovered that there are different strains of the Hessian fly. A variety of wheat may resist one strain of fly but not another.

SALISBURY:
So, the scientists have to breed wheat resistant to the various kinds of flies in various regions.

EISENHOWER:
That -- and also meet this second problem; the resistance of the wheat changes from region to region, with changes in soil, climate, and so on.

SALISBURY:
All of which means, the scientists have to get right down and work on the fly-proof wheats region by region.

EISENHOWER:
Yes, they have a big job ahead of them.

SALISBURY:
Well, so far, you've told us only about the progress of the work on insect proof wheat. What about some of the other crops?

EISENHOWER:
I've talked with Dr. Annand, of the Bureau of Entomology and Plant Quarantine, and Dr. Jenkins, of the Bureau of Plant Industry, about several other crops, including corn.

Jenkins tells me the breeders have developed varieties of corn which not only seem to stand up pretty successfully against the chinch bug, but also produce a high quality of grain in years when the chinch bugs aren't so much of a problem.

SALISBURY:
Chinch bug damage has been bad in the recent dry years. That news ought to be encouraging to folks in the Corn Belt.

EISENHOWER:
Yes, the news sounds encouraging.

Now, Jenkins and Annand also mentioned varieties of corn resistant to root worms -- which were very injurious this past year.

SALISBURY:
Let's see. I believe the root worm makes the stalks lodge.

EISENHOWER:
They do. But, those resistant varieties -- varieties, by the way, bred for ability to avoid lodging without any particular thought of resistance to the root worm -- seem able to stand up against the worms pretty well.

SALISBURY:
Haven't the scientists also developed corn able to withstand the ear worm?

EISENHOWER:
They are developing such strains -- corn with long husks so the worms can't get at the ears.

SALISBURY:
Well, what about alfalfa? Seems to me I also heard something about alfalfal resistant to -- was it the aphid?

EISENHOWER:
Right. The aphid.

And, by the way, the alfalfa aphid is a good example of a crop pest for which we have no practical control by poisons or cultural methods. Annand tells me the scientists are making considerable headway in breeding resistant varieties.

SALISBURY:
Well, it's rather surprising just how many examples of insect-proof crops we have.

EISENHOWER:
I simply mentioned a few of the more important -- where the scientists have done rather definite work. Work is also underway to produce apple varieties resistant to the woolly aphis -- celery resistant to the tarnished plant bug -- and so on -- and so on.

SALISBURY:
Well, this question.

Does the nature of the resistance in each crop seem to be about the same?

EISENHOWER:
Generally speaking, no.

For example, I mentioned the long corn shuck as protection against the ear worm. The ear worms are cannibalistic. Apparently on corn with the long shuck and the long narrow opening at the tip, the worms eat one another as they try to get down through that opening into the corn.

SALISBURY:
Poor sportsmanship, I call it.

EISENHOWER:
Then, as for the corn borer, time of tasseling seems to be the important factor. If the corn discloses its tassel late, the young borers have a much poorer chance to get established. With the alfalfa leaf hopper, hairiness of the alfalfa seems to handicap the hopper in feeding. As for the alfalfa aphid, apparently some varieties have some characteristic much like that of the fly-proof wheat.

SALISBURY:
The secret powers of plants to fight insects seem to be highly varied.

EISENHOWER:
They are.

SALISBURY:
As a practical point, from your interesting report on progress in insect-proof crops, I suppose you might say: Believe there are such things as insect-proof crops -- but remember that the scientists haven't yet developed completely satisfactory commercial varieties.

EISENHOWER:
That's right.

SALISBURY:
Well, thanks, very much, Milton, for your report on insect-proof crops. And we'll be looking forward to another of your stories of agricultural research.

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THE WEED RESEARCH PROGRAM

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A radio discussion between Morse Salisbury and M. S. Eisenhower, broadcast in the Department of Agriculture period, National Farm and Home Hour, Monday, December 30, 1935.

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SALISBURY:

At its last session, the Congress appropriated additional funds to the Department of Agriculture to investigate and try to find effective ways to control some of our more important weeds.

Of all our weed pests, I suppose one of the worst is the bindweed -- a weed especially harmful in the western half of the United States. In fact, I've heard some folks call the bindweed, Public Enemy No. 1 -- although some of the others certainly are close seconds.

Anyway, in their investigational work on weeds, the Department scientists are beginning on the bindweed. The Bureau of Plant Industry is studying the weed itself, cultural methods of control, and so on -- and the Bureau of Chemistry and Soils is trying to develop more effective chemical weed killers.

Today, our Director of Information, M. S. Eisenhower, will tell you briefly about the investigation of the weed itself.

All right, Milton.

EISENHOWER:

Thanks, Morse -- and hello, everyone.

Morse, your comment about bindweed as Public Enemy No. 1 reminds me of the remark of a midwestern farmer. The man said if he had to choose between having a mortgage of $50 an acre, or bindweed, on his place, he'd prefer the 50-dollar-an-acre mortgage. He could pay off the mortgage -- but he could never get rid of the bindweed.

SALISBURY:

He was certainly very pessimistic.

EISENHOWER:

Well, I'm not so sure.

As a matter of fact, several men -- I believe at least some of them were agricultural experiment station directors -- said they looked upon bindweed and snapweed, and some of the other weeds in that class, as worse than soil erosion or insects, or -- well, something else equally as bad.

SALISBURY:

How'd they figure that?

EISENHOWER:

Pretty much like the farmer did. They said you can stop erosion; and insects come and go -- and you can control them.

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SALISBURY:
But you can't control bindweed.

EISENHOWER:
That was their point.

Those men said they'd given up the fight against bindweed -- and were going to begin right away on some of the other weeds before they got as bad as bindweed.

SALISBURY:
Well, do you have any idea of the loss from bindweed?

EISENHOWER:
As I recall, bindweed has permanently destroyed about a million acres.

SALISBURY:
A million acres!

EISENHOWER:
Yes, a million.

SALISBURY:
And of course includes some of our good best farm land.

EISENHOWER:
Right. Once bindweed gets in a community, it spreads in spite of all you can do.

SALISBURY:
Well, it's certainly amazing what damage an innocent-looking pretty little plant can do.

EISENHOWER:
Incidentally, I hope no one confuses bindweed with the other wild morning glories -- or the wild sweet potato vine.

SALISBURY:
It's easy to tell 'em apart; the bindweed has a smaller flower and a smaller leaf than the other wild morning glories or the wild sweet potato.

EISENHOWER:
Yes, the bindweed flower is only about an inch across.

SALISBURY:
And it's white -- or, sometimes a very light pink.

EISENHOWER:
And the leaves have a round or blunt tip rather than a sharp tip. In some sections, folks call it creeping jenny -- others call it wild morning glory. But I'm using its more widely-used name -- bindweed.

SALISBURY:
You've given us a good background on the problem the scientists are tackling. Now, will you sketch briefly their line of attach?

EISENHOWER:
Well, the scientists are following the three usual lines of attack on weeds; that is, cultural methods, cover or smother crops -- and --

SALISBURY:
And, I suppose, the use of chemicals to kill the plants.

EISENHOWER:
Yes, the use of chemicals.

Now, in the past, we've gone after the bindweed in a rather hit-or-miss fashion.

We've tried all sorts of cultural methods.

We've also tried various chemicals -- I believe nearly a hundred in all. Of course, a few have worked pretty well.

SALISBURY:
Especially sodium chlorate.

EISENHOWER:
Yes. But, at present, the chemical treatments cost too much.

SALISBURY:
But, in general, we've been using shotgun methods.

EISENHOWER:
That's right. Shooting and hoping to hit something.

But, with this new appropriation for weed research, the scientists are able to begin to study the bindweed in a systematic way.

SALISBURY:
In other words, make the same kind of study the entomologists are making of the insects; that is, a study of life history, habits, and so on.

EISENHOWER:
Exactly. I talked to L. W. Kephart, of the Bureau of Plant Industry about all this. Kephart, you know is in charge of the investigation of the weed itself, and cultural methods, and so on. He told me the basic problem is to get at the secret of the bindweed's wonderful vitality. He wants to know what makes it so hard to kill?

SALISBURY:
The bindweed <u>can</u> take a lot of punishment.

EISENHOWER:
Kephart tells me a bindweed can stand as many as 30 cuttings, one right after the other. Or, to put it another way, you can cut off the top growth of a bindweed plant about once a week for two years without killing it.

SALISBURY:
What's the reason for that vitality? Is it because of the extensive root system?

EISENHOWER:
Largely that. Especially the length of the roots. I understand those bindweed roots sometimes go down into the ground as far as 25 or 30 feet.

SALISBURY:
Well, now, Milton, can you suggest a few specific problems the scientists are working on?

EISENHOWER:
Well, Kephart mentioned a few of the more important.

Naturally, he and his associates want to get all the facts they can about the general physiology of the bindweed.

SALISBURY:
That is, you mean, about its cell structure, and growing habits, and so on.

EISENHOWER:
Right.

In particular, they're studying the root habits.

For example, Kephart tells me they dug out very carefully a complete root system of a bindweed plant -- dried it in an electric oven -- studied it under the microscope -- and analyzed it.

SALISBURY:
What did they find out?

EISENHOWER:
For one thing, they found a difference in the structure of the root at different levels in the ground.

SALISBURY:
That is, you mean, at a particular level, the root might have more capacity to store food reserves?

EISENHOWER:
That's right. From their analyses, they found more starches, and sugars, and proteins, and other food reserves in the roots at certain levels in the soil than at others.

SALISBURY:
Knowing the location of the food reserves, I suppose they'll know what kind of tillage implements to use to exhaust the roots.

EISENHOWER:
Exactly.

Kephart also mentioned a very interesting discovery about the root buds.

SALISBURY:
You mean those little buds on the roots which form leaves?

EISENHOWER:
That's right.

Kephart tells me he was driving through a deep cut on a road in northeastern Nebraska. He noticed bindweed growing on top of the bank -- and, also, growing out of the side of the bank, clear to the bottom of the cut. When he examined the bindweed plants coming out of the side of the cut, he found that they were sprouting from leaf buds on roots from those plants on top of the bank. The sprouts from those buds were coming out through more than a foot of soil. Since that time, he has found dormant leaf buds -- ready to grow if they get a chance -- as far as 25 feet in the ground.

SALISBURY:
Apparently Mother Nature isn't losing a single chance to spread her pesky bindweed all over the face of the map.

EISENHOWER:
She certainly isn't.

Then, the research scientists are trying to find out how long the bindweed roots will live in the soil. Can you drag them out of the ground, keep them from getting a new foothold for the rest of the season, and expect them to die during the winter? Or, are they perennials?

SALISBURY:
In other words, would it be safe to plant alfalfa on a field where you'd cultivated the bindweed roots for a year? Or, would the bindweed come up in the alfalfa the following year and ruin it?

EISENHOWER:
That's the idea.

SALISBURY:
Then, tying right in with those studies, I judge the scientists are trying to find the effect on the roots of various systems of cultivation.

EISENHOWER:
Correct.

Also, how the chemical killers get into the roots, how they affect the roots and so on.

SALISBURY:
Knowing how the chemicals work on the roots, I suppose they could select chemicals with definite properties to kill the weeds instead of blindly trying this chemical and that chemical.

EISENHOWER:
Right.

Kephart mentioned several other angles to their work. For example, the things influencing the formation of the seeds and how long the seeds live. And, specifically, how the bindweed damages a crop such as corn. Bindweed seems to damage the crop much more under some conditions, at some times, than at others.

Those are a few of the highlights.

SALISBURY:
Well, then, after they've learned some of those facts, the scientists can apply their finds to those three general systems of control you mentioned a moment ago.

EISENHOWER:
That's right.

For example, take cultivation. Knowing the habits of the weed, they'll be able to work out effective methods of cultivation -- the right time to cultivate, and so on.

SALISBURY:
I suppose the same thing's true of the use of cover crops. They'll have a better idea of what crops and combination of crops to use to choke out the bindweed.

EISENHOWER:
That's true. An, incidentally, that means the scientists would have to help farmers work out cropping systems for every sections of the country -- that is, sections troubled with the bindweed.

SALISBURY:
Then, as you suggested, these studies of the weed also may shed light on the kinds of chemicals to use.

EISENHOWER:
They should, yes.

I might add that the Department chemists are trying to find more effective chemicals and cheaper sources of chemical materials. I'll tell you more about that another time.

SALISBURY:
Well, now, Milton, can you tell us briefly how the scientists are proceeding to carry out their research program?

EISENHOWER:
Well, the Department scientists are cooperating with groups of State agricultural experiment stations in typical bindweed areas.

SALISBURY:
Another example of regional research.

EISENHOWER:
That's right.

In northwestern Iowa and Minnesota, they're working especially on the nature of the root itself, and trying out various suggestions for cropping systems. In California, they're concentrating on the way the chemicals affect the roots and plants. Then at Hays, Kansas, they're working on more general problems.

Kephart tells me they also hope to carry on some experiments in the Palouse wheat region in the Northwest and maybe in the irrigated sections of the Southwest.

SALISBURY:
I suppose they wouldn't mind such help as they can get from our listeners.

EISENHOWER:
They'd greatly appreciate it.

Kephart tells me they'd like to hear what experience farmers have had in trying to control bindweed. Of course, a method which works one place -- and under one set of conditions -- won't always work under different conditions. But, just the same, they'd like to get all the facts they can.

SALISBURY:
Well, thanks very much, Milton. We'll look for another report from you next week.

I might explain further that the scientists are just beginning this new study of the bindweed -- and are not yet in a position to offer many definite suggestions. We've merely tried to give you a general idea of plans for tackling the problem.

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